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OM protein - protein search, using sw model

Run on: July 13, 2005, 20:22:12 ; Search time 164 Seconds

Title: US-10-609-370-2
 Perfect score: 842
 Sequence: 1 SSSSATTTPETSTS PKFH VSEERWKGLP SQBP NLIQQDK 157

Scoring table: BL05UM62
 Gapop 10.0 , Gapext 0.5

Searched: 1726220 seqs, 386332138 residues

Total number of hits satisfying chosen parameters:

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Published Applications AA:*

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2: /cgn2_6/ptodata/1/pubpaas/PCT_NEW_PUB.pep:*

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19: /cgn2_6/ptodata/1/pubpaas/us11_PUBCOMB.pep:*

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22: /cgn2_6/ptodata/1/pubpaas/us60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed,
 and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match Length	DB ID	Description
1	842	100.0	157	Sequence 2, Appli
2	689.5	81.9	696 9	Sequence 23, Appli
3	689.5	81.9	696 9	Sequence 23, Appli
4	689.5	81.9	696 13	Sequence 23, Appli
5	689.5	81.9	696 14	Sequence 23, Appli
6	689.5	81.9	696 17	Sequence 23, Appli
7	689.5	81.9	696 20	Sequence 23, Appli
8	689.5	81.9	720 9	Sequence 6, Appli
9	689.5	81.9	720 13	Sequence 6, Appli
10	689.5	81.9	720 14	Sequence 6, Appli
11	689.5	81.9		Sequence 6, Appli

RESULTS

US-10-609-370-2
 Sequence 2, Application US/10609370
 Publication No. US2004048295A1
 GENERAL INFORMATION:
 APPLICANT: Young et al.
 TITLE OF INVENTION: Hareglin-Like Factor
 FILE REFERENCE: PF38JD1
 CURRENT APPLICATION NUMBER: US/10/609,370
 PRIORITY FILING DATE: 2003-07-01
 PRIORITY APPLICATION NUMBER: 09/097,681
 PRIORITY FILING DATE: 1998-06-16
 PRIORITY APPLICATION NUMBER: 60/049,942
 NUMBER OF SEQ ID NOS: 22
 SEQ ID NO 2
 LENGTH: 157
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-10-609-370-2

ALIGNMENTS

RESULT 1

US-10-609-370-2
 Sequence 2, Application US/10609370
 Publication No. US2004048295A1
 GENERAL INFORMATION:
 APPLICANT: Young et al.
 TITLE OF INVENTION: Hareglin-Like Factor
 FILE REFERENCE: PF38JD1
 CURRENT APPLICATION NUMBER: US/10/609,370
 PRIORITY FILING DATE: 2003-07-01
 PRIORITY APPLICATION NUMBER: 09/097,681
 PRIORITY FILING DATE: 1998-06-16
 PRIORITY APPLICATION NUMBER: 60/049,942
 NUMBER OF SEQ ID NOS: 22
 SEQ ID NO 2
 LENGTH: 157
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-10-609-370-2

DESCRIPTION

Query Match 100.0%; Score 842; DB 15;
 Best Local Similarity 100.0%; Pred. No. 3.1e-80;
 Matches 157; Conservative 0; Missmatches 0;
 Indels 0; Gaps 0;

Qy

1 SSSSATTTPETSPKFHTTYSSTERSEHKPDRDKOLAYCLNDGEFVIETLTGSHK 60
 1 SSSSATTTPETSPKFHTTYSSTERSEHKPDRDKOLAYCLNDGEFVIETLTGSHK 60
 Db

Qy

61 HCRCREGYQQVRCDDFLPKTDISLSDPNHAGIEFMSEEVYQRQVLISICLFGVGM 120
 61 HCRCREGYQQVRCDDFLPKTDISLSDPNHAGIEFMSEEVYQRQVLISICLFGVGM 120
 Db

QY 121 FCAAFYFKSKRNTANSVSEYQRWGLPSDEPNLQDK 157
 Db 121 FCAAFYFKSKRNTANSVSEYQRWGLPSDEPNLQDK 157

RESULT 2
 US-09-817-647-23
 ; Sequence 23, Application US/09817647
 ; Patent No. US20020081229A1

GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
 TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related Ligands and Uses Therefor

NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:
 ADDRESSER: Genentech, Inc.
 STREET: 1 DNA Way
 CITY: South San Francisco
 STATE: California
 COUNTRY: USA
 ZIP: 94080

COMPUTER READABLE FORM:
 MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: Winpatin (Genentech)
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/09/877,665
 FILING DATE: 08-Jun-2001
 CLASSIFICATION: <Unknown>
 PRIORITY APPLICATION DATA:
 APPLICATION NUMBER: US/09/817,647
 FILING DATE: 26-Mar-2001
 CLASSIFICATION: <Unknown>
 PRIORITY APPLICATION DATA:
 APPLICATION NUMBER: 09/107,979
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/09/817,647
 FILING DATE: <Unknown>
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: 36,487
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 INFORMATION FOR SEQ ID NO: 23:
 SEQID: 09-877-665-23
 LENGTH: 696 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear

FEATURE:
 NAME/KEY: Human NRG3B2
 LOCATION: 1-696
 IDENTIFICATION METHOD:
 OTHER INFORMATION:
 SEQUENCE DESCRIPTION: SEQ ID NO: 23:

Query Match 81.9%; Score 689.5; DB 9; Length 696;
 Best Local Similarity 92.3%; Pred. No. 2.1e-63; Indels 4; Gaps 2;

Qy 1 SSSSSATTTPETSTSPKFHPTTYSSTERSEHFKPCRDKDLYCLNDGCFVIETLTGSHK 60
 Db 256 SSSSSATTTPETSTSPKFHPTTYSSTERSEHFKPCRDKDLYCLNDGCFVIETLTGSHK 315

Qy 1 HCRCKEGYQGVRCQDQLPKTDSTSILSDP-NHLGIEFMESSEYQRQVLISCIIFGIVVG 119
 Db 256 HCRCKEGYQGVRCQDQLPKTDSTSILSDP-NHLGIEFMESSEYQRQVLISCIIFGIVVG 375

Qy 61 HCRCKEGYQSVRCQDQLPKTDSTSILSDP-NHLGIEFMESSEYQRQVLISCIIFGIVVG 60
 Db 316 HCRCKEGYQSVRCQDQLPKTDSTSILSDP-NHLGIEFMESSEYQRQVLISCIIFGIVVG 315

Qy 1 SSSSSATTTPETSTSPKHTTYSSTEREKFPCRDKDLYCLNDGCFVIETLTGSHK 60
 Db 256 SSSSSATTTPETSTSPKHTTYSSTEREKFPCRDKDLYCLNDGCFVIETLTGSHK 315

Qy 1 HCRCKEGYQGVRCQDQLPKTDSTSILSDP-NHLGIEFMESSEYQRQVLISCIIFGIVVG 119
 Db 316 HCRCKEGYQGVRCQDQLPKTDSTSILSDP-NHLGIEFMESSEYQRQVLISCIIFGIVVG 375

RESULT 4
 US-10-136-573A-23
 ; Sequence 23, Application US/10136573A
 ; Publication No. US20020161200A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Godowski, Paul J.
 ; APPLICANT: Zhang, Dong Xiao
 ; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related Ligands and
 ; TITLE OF INVENTION: Uses Therefor
 ; FILE REFERENCE: P1084R1C2

RESULT 3
 US-09-877-665-23
 ; Sequence 23, Application US/09877665

CURRENT APPLICATION NUMBER: US/10/136,573A
 CURRENT FILING DATE: 2002-04-29
 PRIOR APPLICATION NUMBER: US 09/480,977
 PRIOR FILING DATE: 2000-01-11
 PRIOR APPLICATION NUMBER: US 08/899,437
 PRIOR FILING DATE: 1997-07-24
 PRIOR APPLICATION NUMBER: US 60/052,019
 PRIOR FILING DATE: 1997-07-09
 NUMBER OF SEQ ID NOS: 23
 SEQ ID NO: 23
 LENGTH: 696
 TYPE: PRT
 ORGANISM: Homo sapiens

US-10-136,573A-23

Query Match 81.9%; Score 689.5; DB 14; Length 696;
 Best Local Similarity 92.3%; Pred. No. 2.1e-63;
 Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTPETSTSPKFTTTYSTERSHFKPCRDKDYLAYCLNDGECPVIEUTLGSHK 60
 Db 256 SSSSSATTTPETSTSPKFTTTYSTERSHFKPCRDKDYLAYCLNDGECPVIEUTLGSHK 315

Qy 61 HCRCKEGYQGVRCQDFLPKTDTSILSDP-NHIGIEMESEEVYQRLSISCIIRGIVYG 119
 Db 3116 HCRCKEGYQGVRCQDFLPKTDTSILSDPTDHIGIEMESEEVYQRLSISCIIRGIVYG 375

Qy 120 MFCAAFYFYSKRNTANSVSEB 141
 Db 376 MFCAAFYFYSKRQQ-AKQIQEQ 395

RESULT 5
 Sequence 23, Application US/10/215,862
 Publication No. US2003036166A1
 GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J.
 APPLICANT: Mark, Melanie Rose
 APPLICANT: Zhang, Dong Xiao
 TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related Ligands and
 TITLE OF INVENTION: Uses Therefor
 FILE REFERENCE: P1084R1D2C1

CURRENT APPLICATION NUMBER: US/10/215,862
 CURRENT FILING DATE: 2002-09-24
 PRIOR APPLICATION NUMBER: US 09/126,663
 PRIOR FILING DATE: 1998-07-30
 PRIOR APPLICATION NUMBER: US 08/899,437
 PRIOR FILING DATE: 1997-07-24
 PRIOR APPLICATION NUMBER: US 60/052,019
 PRIOR FILING DATE: 1997-07-09
 NUMBER OF SEQ ID NOS: 23
 SEQ ID NO: 23
 LENGTH: 696
 TYPE: PRT
 ORGANISM: Homo sapiens

US-10-215,862-23

Query Match 81.9%; Score 689.5; DB 17; Length 696;
 Best Local Similarity 92.3%; Pred. No. 2.1e-63;
 Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTPETSTSPKFTTTYSTERSHFKPCRDKDYLAYCLNDGECPVIEUTLGSHK 60
 Db 256 SSSSSATTTPETSTSPKFTTTYSTERSHFKPCRDKDYLAYCLNDGECPVIEUTLGSHK 315

Qy 61 HCRCKEGYQGVRCQDFLPKTDTSILSDP-NHIGIEMESEEVYQRLSISCIIRGIVYG 119
 Db 3116 HCRCKEGYQGVRCQDFLPKTDTSILSDPTDHIGIEMESEEVYQRLSISCIIRGIVYG 375

Qy 120 MFCAAFYFYSKRNTANSVSEB 141
 Db 376 MFCAAFYFYSKRQQ-AKQIQEQ 395

RESULT 7
US-11-035-787-23
; Sequence 23, Application US/11035787
; GENERAL INFORMATION:
; ADDRESSEE: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related
; Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESS: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Winpatin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/11/035,787
; FILING DATE: 14-Jan-2005
; CLASSIFICATION: <Unknown>
; PRIORITY APPLICATION DATA:
; APPLICATION NUMBER: 09/480,977
; FILING DATE: 11-Jan-2000
; APPLICATION NUMBER: 08/899,437
; FILING DATE: 24-Jul-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 696 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: Human NRG3B2
; LOCATION: 1-696
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; SEQUENCE DESCRIPTION: SEQ ID NO: 23:
; US-11-035-787-23

Query Match 81.9%; Score 689.5; DB 20; Length 696;
Best Local Similarity 92.3%; Pred. No 2.le-63; Indels 3; Gaps 2;
Matches 131; Conservative 4; Mismatches 4; Gaps 2;

RESULT 9
US-09-877-665-6
; Sequence 6, Application US/09877665
; Patent No. US20020146801
; GENERAL INFORMATION:
; TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related
; Ligands and Uses Therefor

RESULT 8
US-09-817-647-6
; Sequence 6, Application US/09817647
; Patent No. US20020082229A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao

COUNTRY: USA
 ZIP: 94080
 COMPUTER READABLE FORM:
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: WinPatin (Genentech)

CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/09/877,665
 FILING DATE: 08-Jun-2001
 CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:
 APPLICATION NUMBER: US/09/109,206
 FILING DATE: 30-Jun-1998
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: 36,487
 REFERENCE/DOCKET NUMBER: P1084R1-1
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 INFORMATION FOR SEQ ID NO: 6:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 720 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear

FEATURE:
 NAME/KEY: HNRGB1 amino acid sequence
 LOCATION: 1-720
 IDENTIFICATION METHOD:
 OTHER INFORMATION: SEQUENCE DESCRIPTION: SEQ ID NO: 6:
 US-09-877-665-6

Query Match 81.9%; Score 689.5; DB 9; Length 720;
 Best Local Similarity 92.3%; Pred. No. 2.2e-63;
 Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTPETSSPKFTTTYSERSEHFKPCKDKDCLAYCLNDGECPVIEITLTGSHK 60
 Db 256 SSSSSATTTPETSSPKFTTTYSERSEHFKPCKDKDCLAYCLNDGECPVIEITLTGSHK 315

Qy 61 HCRCKEGYQGVRCDQLPKTDSILSDP-NHLGIEFMESEEVYQRVLISCIIFGIVVG 119
 Db 316 HCRCKEGYQGVRCDQLPKTDSILSDPDTDLGIEFMESEEVYQRVLISCIIFGIVVG 375

Qy 120 MFCAAFYFKSKRNITANSVSEE 141
 Db 376 MFCAAFYFKSKQQ-AKQIQQ 395

RESULT 10
 US-10-136-573A-6
 Sequence 6, Application US/10136573A
 Publication No. US20020161200A1
 GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J.
 APPLICANT: Mark, Melanie Rose
 APPLICANT: Zhang, Dong Xiao
 TITLE OF INVENTION: ErBB Receptor-Specific Neuregulin Related Ligands and
 FILE REFERENCE: P1084R1C2
 CURRENT APPLICATION NUMBER: US/10/136,573A
 CURRENT FILING DATE: 2002-04-29
 PRIOR APPLICATION NUMBER: US 09/480,977
 PRIOR FILING DATE: 2000-01-11
 PRIOR APPLICATION NUMBER: US 08/899,437
 PRIOR FILING DATE: 1997-07-24
 PRIOR APPLICATION NUMBER: US 60/052,019
 SEQ ID NO 6

Qy 1 SSSSSATTTPETSSPKFTTTYSERSEHFKPCKDKDCLAYCLNDGECPVIEITLTGSHK 60
 Db 256 SSSSSATTTPETSSPKFTTTYSERSEHFKPCKDKDCLAYCLNDGECPVIEITLTGSHK 315

Qy 61 HCRCKEGYQGVRCDQLPKTDSILSDP-NHLGIEFMESEEVYQRVLISCIIFGIVVG 119
 Db 316 HCRCKEGYQGVRCDQLPKTDSILSDPDTDLGIEFMESEEVYQRVLISCIIFGIVVG 375

Qy 120 MFCAAFYFKSKRNITANSVSEE 141
 Db 376 MFCAAFYFKSKQQ-AKQIQQ 395

RESULT 12
 US-10-944-116-6
 Sequence 6, Application US/10944116
 Publication No. US20030048522A1
 GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J.
 APPLICANT: Mark, Melanie Rose
 APPLICANT: Zhang, Dong Xiao
 TITLE OF INVENTION: Erbb4 Receptor-Specific Neuregulin Related

NUMBER OF SEQUENCES: 23
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: Genentech, Inc.
 STREET: 1 DNA Way
 CITY: South San Francisco
 STATE: California
 ZIP: 94080

COMPUTER READABLE FORM:
 MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: WinPatin (Genentech)

CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/10/944,116
 FILING DATE: 17-Sep-2004
 CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:
 APPLICATION NUMBER: 09/877665
 FILING DATE: 08-JUN-2001
 APPLICATION NUMBER: 09/109206
 FILING DATE: 30-JUN-1998
 APPLICATION NUMBER: 60/052019
 FILING DATE: 09-JUL-1997
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: 36,487
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881

INFORMATION FOR SEQ ID NO: 6:
 NAME/KEY: HNRG3B1 amino acid sequence
 LOCATION: 1-720
 SEQUENCE CHARACTERISTICS:
 LENGTH: 720 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear

FEATURE:
 NAME/KEY: HNRG3B1 amino acid sequence
 LOCATION: 1-720
 SEQUENCE DESCRIPTION: SEQ ID NO: 6:
 US-10-944-116-6

Query Match 81.9%; Score 689.5; DB 20; Length 720;
 Best Local Similarity 92.3%; Pred. No. 2, 2e-63;
 Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSATTTPETSTSPKHTTYSTSTERSEHFKPCRDKDLYCINDGRCFVIETLTGSHK 60
 Db 256 SSSSATTTPETSTSPKHTTYSTSTERSEHFKPCRDKDLYCINDGRCFVIETLTGSHK 315

Qy 61 HCRCKEGYGVRCRDQLPLKTDLSLSDP-NHIGLEFMESEEVYQRQLSISCLIFGIVIVG 119
 Db 316 HCRCKEGYGVRCRDQLPLKTDLSLSDP-NHIGLEFMESEEVYQRQLSISCLIFGIVIVG 375

Qy 120 MFCAFYFSKKQQ-AKQIQQ 141
 Db 376 MFCAFYFSKKQQ-AKQIQQ 395

RESULT 13
 US-11-035-787-6
 Sequence 6, Application US/11035787
 Publication No. US20050136467A1

GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
 TITLE OF INVENTION: Erbb Receptor Specific Neuregulin Related
 NUMBER OF SEQUENCES: 23
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: Genentech, Inc.

RESULT 14
 US-10-609-370-22
 Sequence 22, Application US/10609370
 Publication No. US2004048295A1

GENERAL INFORMATION:
 APPLICANT: Young et al.
 TITLE OF INVENTION: Heregulin-Like Factor
 FILE REFERENCE: PP83D1
 CURRENT APPLICATION NUMBER: US/10/609,370
 CURRENT FILING DATE: 2003-07-01
 PRIOR APPLICATION NUMBER: 09/097,681
 PRIOR FILING DATE: 1998-06-16
 PRIOR APPLICATION NUMBER: 60/049,942
 PRIOR FILING DATE: 1997-06-17
 NUMBER OF SEQ ID NOS: 22
 SOFTWARE: PatentIn version 3.2
 SEQ ID NO 22

LENGTH: 720
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-10-609-370-22

Query Match 81.5%; Score 686.5; DB 15; Length 720;
 Best Local Similarity 91.5%; Pred. No. 4.5e-63;
 Matches 130; Conservative 5; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSATTTPETSTSPKFHTTTYSSTERSEHFKPCRDKDILAYCLNDGECFVIETLTGSHKH 61
 Db 256 SSSSSTTTPETSTSPKFHTTTYSSTERSEHFKPCRDKDILAYCLNDGECFVIETLTGSHKH 318

Qy 61 HCRCKEGYQYGRCDQLPKTDTSILSDP-NHLGIEFMESSEVYQRQLSISCIIFGIVIVGM 120
 Db 316 HCRCKEGYQYGRCDQLPKTDTSILSDPDTDHLGIEFMESSEVYQRQLSISCIIFGIVIVGM 378

Qy 120 MFCAAFYFYSKSRNITANSVSE 141
 Db 376 MFCAAFYFYSKSKQ--AKQIQQ 395

RESULT 15
 US-09-817-647-2
 Sequence 2, Application US/09817647
 Patent No. US20030082229A1

GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
 TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related Ligands and Uses Therefor
 NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:
 ADDRESSEE: Genentech, Inc.
 STREET: 1 DNA Way
 CITY: South San Francisco
 STATE: California
 COUNTRY: USA
 ZIP: 94080

COMPUTER READABLE FORM:
 MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: WinPatin (Genentech)

CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/09/817,647
 FILING DATE: 26-Mar-2001
 CLASSIFICATION: <Unknown>
 PRIORITY APPLICATION DATA:
 APPLICATION NUMBER: 09/107,979

ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: 36,487
 REFERENCE/DOCKET NUMBER: P1084R1-2

TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881

INFORMATION FOR SEQ ID NO: 2:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 713 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear

FEATURE:
 NAME/KEY: Mouse NRG3 (mNRG3) /amino acid seq.
 LOCATION: 1-713
 IDENTIFICATION METHOD:
 OTHER INFORMATION: SEQ ID NO: 2:

US-09-817-647-2
 Query Match 80.1%; Score 674.5; DB 9; Length 713;
 Best Local Similarity 90.7%; Pred. No. 8.1e-62;
 Matches 127; Conservative 6; Mismatches 3; Indels 3; Gaps 2;

Search completed: July 13, 2005, 20:32:17
 Job time : 165 secs

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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 13, 2005, 20:14:46 ; Search time 161 Seconds

(without alignments)

377.151 Million cell updates/sec

Title: US-10-609-370-2

Perfect score: 842

Sequence: 1 SSSSATTTPETSTSPKFH.....VSEERWKGLPQSQEPNQLQQDK 157

Scoring table: BLOSUM62

Gapext 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters:

2105692

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : A_Geneseq_16Dec04.*

1: GeneseqP1980B:*

2: GeneseqP1990B:*

3: GeneseqP2000B:*

4: GeneseqP2001B:*

5: GeneseqP2002B:*

6: GeneseqP2003B:*

7: GeneseqP003B:*

8: GeneseqP2004B:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Match	Length	DB	ID	Description
1	842	100.0	157	AAY05451		Aay05451 Human her
2	842	100.0	157	ADN48870		Adn48870 Human her
3	689.5	81.9	696	AAW97519		Aaw97519 Human neu
4	689.5	81.9	696	ABG32080		Abg32080 Novel hum
5	689.5	81.9	720	AAW97618		Aaw97618 Human neu
6	689.5	81.9	720	ABG32065		Abg32065 Human nov
7	686.5	81.5	720	AAY05452		Aay05452 Human her
8	686.5	81.5	720	ADN48890		Adn48890 Human her
9	674.5	80.1	713	AAW97617		Aaw97617 Mouse neu
10	674.5	80.1	713	ABG32061		Abg32061 Mouse nov
11	658.5	78.2	502	ABB08776		Abb08776 Human neu
12	552.5	65.6	360	AAW97521		Aaw97521 Human neu
13	539.5	64.1	362	AAW97620		Aaw97620 Mouse neu
14	305	36.2	52	AAE36607		Aae36607 Human neu
15	282	23.5	48	AAG66046		Aag66046 Mouse NRG
16	277	32.9	47	AAW97622		Aaw97622 Human neu
17	251.5	29.9	478	AAB48101		Aab48101 CRD domai
18	251.5	29.9	700	AAB67745		Aab67745 Amino aci
19	246.5	29.3	1070	AAB48099		Aab48099 Amino aci
20	246.5	29.3	1070	AAE08585		Aae08585 Chicken n
21	241.5	28.7	675	AAW74491		Aaw74491 Amino aci
22	237.5	28.2	675	AAW74494		Aaw74494 Amino aci
23	237.5	28.2	675	AAW74493		Aaw74493 Amino aci
24	237.5	28.2	675	AAW71198		Aaw71198 Human Her
25	237.5	28.2	675	AAY71203		Aay71203 Human Her

ALIGNMENTS

RESULT 1	
ID	AAY05451
ID	AAY05451 standard; protein; 157 AA.
XX	
AC	AAY05451;
XX	
DT	06-JUL-1999 (first entry)
XX	
DB	Human heregulin-like factor sequence.
XX	
KW	Human heregulin-like factor; HLF; cell growth regulator; diagnosis;
KW	neural system disorder; cancer.
XX	
OS	Homo sapiens.
XX	
PR	97US-004942P.
XX	
PR	W09857989-A1.
XX	
PD	23-DBC-1998.
XX	
PP	16-JUN-1998; 98WO-US012403.
XX	
PR	17-JUN-1997; 97US-004942P.
XX	
PA	(HUNA-) HUMAN GENOME SCI INC.
PA	(GEONU) UNIV GEORGETOWN.
XX	
PI	Young P, Ruben SM, King CR, Hijazi MM;
XX	
DR	WPI 1999-095327/08.
DR	N-PSDB; AAX36123.
XX	
PT	New isolated heregulin-like factor - used to develop products for the diagnosis and treatment of disorders involving regulation of cell growth, particularly cancers.
PT	Claim 17: Page 86-87; 118pp; English.
CC	This sequence is the human heregulin-like factor (HLF) of the invention.
CC	The HLF is involved in the regulation of cell growth. Detection of the different levels of expression of the HLF gene can be used for the diagnosis of disorders, e.g. in the neural system. In particular, detection of different levels of HLF gene expression in cells or body fluid of an individual can be used for diagnosing cancer. The products can also be used in the treatment of disorders involving abnormal levels of HLF activity.
CC	Sequence 157 AA;
SQ	Sequence 157 AA;

Query Match	100.0% ; Score 842; DB 2; Length 157;	Db	61 HCRCKEGYQGRCDQLPKDTSILSDPNHIGIEFMESEEVYQROVLISIICLNGECVIELTGSHK 60
Best Local Similarity	100.0% ; Pred. No. 1.6e-74;		
Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;			
Qy	1 SSSSSATTTPETSTSPKPFHTTYSTERSHFKPCRDKDIALCLNDGECVIELTGSHK 60	Qy	121 FCAAFYFKSKRITANSYSEERMKGLPSEQEPNLQQDK 157
Db	1 HCRCKEGYQGRCDQLPKDTSILSDPNHIGIEFMESEEVYQROVLISIICLNGECVIELTGSHK 60	Db	121 FCAAFYFKSKRITANSYSEERMKGLPSEQEPNLQQDK 157
Qy	61 HCRCKEGYQGRCDQLPKDTSILSDPNHIGIEFMESEEVYQROVLISIICLNGECVIELTGSHK 60	Qy	121 FCAAFYFKSKRITANSYSEERMKGLPSEQEPNLQQDK 157
Db	61 HCRCKEGYQGRCDQLPKDTSILSDPNHIGIEFMESEEVYQROVLISIICLNGECVIELTGSHK 60	Db	121 FCAAFYFKSKRITANSYSEERMKGLPSEQEPNLQQDK 157
RESULT 2			
ADN48870	standard; protein; 157 AA.		
ID			
XX			
AC	ADN48870;		
XX			
DT	15-JUL-2004 (first entry)		
XX			
DE	Human heregulin-like factor (HLF) protein.		
XX			
KW	HLF; heregulin-like factor; diagnosis; cancer; gene therapy; human.		
XX			
OS	Homo sapiens.		
XX			
Key	Location/Qualifiers		
FH	26..93		
FT	/note = EGF domain		
FT			
XX			
XX	US6727077-B1.		
FN			
XX			
PD	27-APR-2004.		
XX			
PP	16-JUN-1998; 98US-00097681.		
XX			
PR	17-JUN-1997; 97US-0049492P		
XX			
PA	(HUMA-) HUMAN GENOME SCI INC.		
PA	(GEOU) UNIV GEORGETOWN MEDICAL CENT.		
XX			
PI	Young PE, King CR, Hijazi M, Ruben SM;		
XX			
DR	WPI; 2004-338520/31.		
DR	N-PSDB; ADN48869.		
XX			
PS	Claim 1; SEQ ID NO 2; 48pp; English.		
XX			
PT	The present invention relates to novel heregulin-like factor (HLF) polypeptides and the encoding polynucleotides. The invention is useful for preparing a composition for diagnosing and treating cancer. The invention is also useful in gene therapy. The present sequence is human heregulin-like factor (HLF) protein.		
XX			
Sequence 157 AA;			
Query Match	100.0% ; Score 842; DB 8; Length 157;		
Best Local Similarity	100.0% ; Pred. No. 1.6e-74;		
Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;			
Qy	1 SSSSSATTTPETSTSPKPFHTTYSTERSHFKPCRDKDIALCLNDGECVIELTGSHK 60	Qy	1 SSSSSATTTPETSTSPKPFHTTYSTERSHFKPCRDKDIALCLNDGECVIELTGSHK 60
Db	1 SSSSSATTTPETSTSPKPFHTTYSTERSHFKPCRDKDIALCLNDGECVIELTGSHK 60	Db	1 SSSSSATTTPETSTSPKPFHTTYSTERSHFKPCRDKDIALCLNDGECVIELTGSHK 60
Qy	61 HCRCKEGYQGRCDQLPKDTSILSDPNHIGIEFMESEEVYQROVLISIICLNGECVIELTGSHK 60	Qy	61 HCRCKEGYQGRCDQLPKDTSILSDPNHIGIEFMESEEVYQROVLISIICLNGECVIELTGSHK 60

CC They can be used to prevent or treat damage to a nerve or damage to other
 CC NRG3-expressing or NRG3-responsive cells, e.g. brain, heart, or kidney
 CC cells. In particular, they can be used to treat diseases which involve
 CC neural cell growth such as demyelination, or damage or loss of glial
 CC cells (e.g. multiple sclerosis). They can be used to treat patients whose
 CC nervous system has been damaged by e.g. trauma, surgery, stroke,
 CC ischaemia, infection, metabolic disease, nutritional deficiency,
 CC malignancy, or toxic agents. NRG3 can also be used to treat motor neuron
 CC disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease),
 CC Bell's palsy, conditions involving spinal muscular atrophy or paraparesis,
 CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's
 CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
 CC syndrome, nerve deafness, and Meniere's disease. They can also be used to
 CC treat neuropathies associated with systemic disease including post-polio
 CC syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease,
 CC Refsum's disease, abetalipoproteinemia, Krabbe's
 CC disease, metachromatic leukodystrophy, Fabry's disease and Dejerine-Sottas
 CC syndrome, to treat disease of skeletal muscle or smooth muscle,
 CC such as muscular dystrophy or diseases caused by skeletal or smooth
 CC muscle wasting. The products can also be used for detection, diagnosis,
 CC for the production of transgenic or knockout animals or for drug
 CC screening

XX Sequence 696 AA;

Query Match Score 689 5; DB 2; Length 696;
 Best Local Similarity Pred. No. 9.7e-59;
 Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
 Qy 1 SSSSSATTTPETSTSPKFTHTTYSTERSHKPCRDKDOLAYCLNDGECPVIELTGSHK 60
 Db 256 SSSSSATTTPETSTSPKFTHTTYSTERSHKPCRDKDOLAYCLNDGECPVIELTGSHK 315
 Qy 61 HCRCEGYQQVRCDFPLPKTDISLSDP-NHAGIEFMESEEVYQQLVLSIICIFGIVIG 119
 Db 316 HCRCEGYQQVRCDFPLPKTDISLSDPTDHGIEFMESEEVYQQLVLSIICIFGIVIG 375
 Qy 120 MFCAAFYFYSKRNTTANSVSE 141
 Db 376 MFCAAFYFYSRKQ--AKQIOBQ 395

RESULT 4
 ABG32080
 ID ABG32080 standard; protein; 696 AA.
 AC ABG32080;
 DT 05-NOV-2002 (first entry)

DE Novel human neuregulin related ligand NRG3B2.

XX Neuregulin related ligand; NRG3; neuroprotective; cell therapy;
 XX epidermal growth factor-like domain; EGF-like domain; Bell's palsy;
 XX Erbb4 receptor detection; amyotrophic lateral sclerosis; Paralysis;
 XX lou Gehrig's disease; spinal muscular atrophy; multiple sclerosis;
 XX neurodegenerative disorder; Alzheimer's disease; Parkinson's disease;
 XX epilepsy; Huntington's chorea; Down's syndrome; nerve deafness;
 XX Meniere's disease; neuropathy; distal sensorimotor neuropathy;
 XX autonomic neuropathy; hereditary neuropathy; Charcot-Marie Toth disease;
 XX Refsum's disease; Abetalipoproteinemia; Tangier disease;
 XX Krabbe's disease; Metachromatic leukodystrophy; Fabry's disease;
 XX Dejerine-Scottas syndrome; human; NRG3B2.
 OS Homo sapiens.
 XX US2002082229-A1.

XX 27-JUN-2002.
 PD 26-MAR-2001; 2001US-00817647.
 XX 24-JUL-1997; 97US-0053641P.

PR 30-JUN-1998; 98US-00107979.

XX (GETH) GENENTECH INC.
 PA

XX PI Godowski PJ, Mark MR, Zhang D;
 XX WPI; 2002-617760/66.
 DR N-PSDB; ABK90730.

XX A new neuregulin related ligand designated NRG3 has an epidermal growth
 PT factor-like domain and binds to Erbb4 receptor, and is useful to prevent
 PT or treat NRG3 associated disorders, particularly nerve damage.
 XX Example 1; Fig 4A-B; 60pp; English.

XX The invention describes a polypeptide comprising an amino acid sequence
 CC encoding an epidermal growth factor (EGF)-like domain, and having the
 CC binding characteristics of neuregulin related ligand (NRG3). NRG3
 CC polypeptide can be used to detect Erbb4 receptor in a mammalian tissue
 CC sample, and also to prevent or treat disorders associated with NRG3 such
 CC as: amyotrophic lateral sclerosis (lou Gehrig's disease), Bell's palsy
 CC and various conditions involving spinal muscular atrophy or paralysis,
 CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's
 CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
 CC syndrome, nerve deafness, Meniere's disease, neuropathy such as distal
 CC sensorimotor neuropathy or autonomic neuropathy, hereditary neuropathies
 CC such as Charcot-Marie-Tooth disease, Refsum's disease,
 CC leuodystrophy, Fabry's disease and Dejerine-Scottas syndrome. This is
 CC the amino acid sequence of the novel human neuregulin related ligand
 NRG3B2

XX Sequence 696 AA;
 SQ Query Match Score 689 5; DB 5; Length 696;
 Best Local Similarity Pred. No. 9.7e-59;
 Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
 Db 256 SSSSSATTTPETSTSPKFTHTTYSTERSHKPCRDKDOLAYCLNDGECPVIELTGSHK 60
 Qy 1 SSSSSATTTPETSTSPKFTHTTYSTERSHKPCRDKDOLAYCLNDGECPVIELTGSHK 315
 Db 316 HCRCEGYQQVRCDFPLPKTDISLSDP-NHAGIEFMESEEVYQQLVLSIICIFGIVIG 119
 Qy 61 HCRCEGYQQVRCDFPLPKTDISLSDPTDHGIEFMESEEVYQQLVLSIICIFGIVIG 375
 Db 316 HCRCEGYQQVRCDFPLPKTDISLSDPTDHGIEFMESEEVYQQLVLSIICIFGIVIG 375

XX Query Match Score 689 5; DB 5; Length 696;
 Best Local Similarity Pred. No. 9.7e-59;
 Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
 Db 256 SSSSSATTTPETSTSPKFTHTTYSTERSHKPCRDKDOLAYCLNDGECPVIELTGSHK 315
 Qy 1 SSSSSATTTPETSTSPKFTHTTYSTERSHKPCRDKDOLAYCLNDGECPVIELTGSHK 60
 Db 256 SSSSSATTTPETSTSPKFTHTTYSTERSHKPCRDKDOLAYCLNDGECPVIELTGSHK 315

XX Query Match Score 689 5; DB 5; Length 696;
 Best Local Similarity Pred. No. 9.7e-59;
 Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
 Db 256 SSSSSATTTPETSTSPKFTHTTYSTERSHKPCRDKDOLAYCLNDGECPVIELTGSHK 315
 Qy 1 SSSSSATTTPETSTSPKFTHTTYSTERSHKPCRDKDOLAYCLNDGECPVIELTGSHK 60
 Db 256 SSSSSATTTPETSTSPKFTHTTYSTERSHKPCRDKDOLAYCLNDGECPVIELTGSHK 315
 Qy 61 HCRCEGYQQVRCDFPLPKTDISLSDP-NHAGIEFMESEEVYQQLVLSIICIFGIVIG 119
 Db 316 HCRCEGYQQVRCDFPLPKTDISLSDPTDHGIEFMESEEVYQQLVLSIICIFGIVIG 375
 Qy 120 MFCAAFYFYSKRNTTANSVSE 141
 Db 376 MFCAAFYFYSRKQ--AKQIOBQ 395

RESULT 5
 AAW37618

ID AAW37618 standard; protein; 720 AA.
 XX AC AAW37618;

XX DT 10-MAY-1999 (first entry)
 DE Human neuregulin related ligand NRG3.

XX KW Neuregulin related ligand; NRG3; human; Erbb4 receptor;
 KW signal transduction; nervous system disorder; neurodegeneration;
 KW neuropathy; therapy; diagnosis.
 XX OS Homo sapiens.

XX PN US2002082229-A1.

XX PD 27-JUN-2002.
 PF 26-MAR-2001; 2001US-00817647.

XX 24-JUL-1997; 97US-0053641P.

XX Location/Qualifiers
 1. .360 /note= "extracellular domain, specifically claimed in
 Claim 5 (a)"
 66. .91 /note= "hydrophobic region"

Region	101 . .284	1 SSSSATTPPTTSKFKHTTYSTERSEEFKPKDKDILAYCLNDGECFVLTETLGSHK 60
FT:	/note= "mucin-like Ser/Thr-rich region, contains sites for O-linked glycosylation"	256 SSSSATTPPTTSKFKHTTYSTERSEEFKPKDKDILAYCLNDGECFVLTETLGSHK 315
FT:	285 . .354	
Domain		
FT:	/note= "EGF-like domain"	61 HCRCKEGYQYRCRCDQFLPKTDSLSDP-NHIGIEFMESEEVYQRQLSISCTIFGIVIG 119
FT:	356 . .394	316 HCRCKEGYQYRCRCDQFLPKTDSLSDPDLHIGIEFMESEEVYQRQLSISCTIFGIVIG 375
Domain	/note= "transmembrane domain"	
W09902681-A1.	XX	
XX	XX	
PDD	21-JAN-1999.	120 MFCAAFYFKSKRKNTANSVSEE 141
PPF	30-JUN-1998;	376 MFCAAFYFKSKRKQ-AKQIQQQ 395
XX	98WO-US013411.	
XX	09-JUL-1997;	RESULT 6
PR	97US-0052019P.	ID ABG32065 standard; protein; 720 AA.
PR	24-JUL-1997;	XX
XX	97US-00899437.	XX
(GETH) GENENTECH INC.		XX
XX		XX
RI	Godowski PJ, Mark MR, Zhang D;	XX
DR	WPI; 1999-120882/10.	XX
N-PSDB, AAK06988		XX
XX		XX
PT	New isolated neuregulin related ligand-3 - used to develop products for treating nervous system disorders, e.g. stroke, ischaemia, infection, malignancy, Alzheimer's disease or Down's syndrome.	XX
PT	Claim 5 (b) ; Page 66-69; 101pp; English.	XX
PR	This is the amino acid sequence of human neuregulin related ligand NRG3, a novel member of the epidermal growth factor (EGF)-like family of protein ligands that binds to the Erbb4 receptor, but not to the Erbb2 or Erbb3 receptor, and which activates Erbb4 receptor tyrosine phosphorylation. The sequence was deduced from the nucleotide sequence of a cDNA clone (see AAX09881) from a foetal brain library. The EGF-like domain of NRG3 is distinct from those of NRG1 or NRG2, and NRG3 displays receptor binding characteristics that are distinct from those of other neuregulins. An alternatively spliced form of human NRG3 is provided in AAW97619. The invention provides human and murine NRG3 polypeptides (see also AAW97617), expression vectors, host cells and methods for the recombinant production of NRG3s. The NRG3 polypeptides and polynucleotides and can be used to enhance the survival, proliferation or differentiation of cells having the Erbb4 receptor in vivo and in vitro. They can be used to prevent or treat damage to a nerve or damage to other cells. In particular, they can be used to treat diseases which involve neural cell growth such as demyelination, or damage or loss of glial cells (e.g. multiple sclerosis). They can be used to treat patients whose nervous system has been damaged by e.g. trauma, surgery, stroke, ischaemia, infection, metabolic disease, nutritional deficiency, malignancy, or toxic agents. NRG3 can also be used to treat motor neuron disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease), Bell's palsy, conditions involving spinal muscular atrophy or paralysis, neurodegenerative disorders such as Alzheimer's disease, Parkinson's disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's syndrome, nerve deafness, and Meniere's disease. They can also be used to treat neuropathies associated with systemic disease including post-polio syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease, Refsum's disease, abetalipoproteinemia, Fabry's disease, Krabbe's disease, metachromatic leukodystrophy, Fabry's disease and Dejerine-Sottas syndrome, to treat disease of skeletal muscle of smooth muscle, such as muscular dystrophy or diseases caused by skeletal or smooth muscle wasting. The products can also be used for detection, diagnosis, screening for the production of transgenic or knockout animals or for drug screening	XX
XX	Sequence 720 AA;	XX
SQ		XX
Query Match	81.9%; Score 689.5; DB 2; Length 720;	CC
Best Local Similarity	92.3%; Pred. No. 1e-58;	CC
Matches 131; Conservative	4; Mismatches 4; Indels 3; Gaps 2;	CC

CC as: amyotrophic lateral sclerosis (Lou Gehrig's disease), Bell's palsy, CC and various conditions involving spinal muscular atrophy or paralysis, CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's syndrome, nerve deafness, Meniere's disease, neuropathy such as distal sensorimotor neuropathy or autonomic neuropathy, hereditary neuropathies such as Charcot-Marie-Tooth disease, Refsum's disease, Abetalipoproteinemia, Tangier disease, Krabbe's disease, Metachromatic leukodystrophy, Fabry's disease and Dejerine-Sottas syndrome. This is the amino acid sequence of the novel human neuregulin related ligand (NRG3B1)

XX Sequence 720 AA;

Query Match 81.9%; Score 689.5; DB 5; Length 720;
Best Local Similarity 92.3%; Pred. No. 1e-58; Mismatches 4; Indels 3; Gaps 2;
Matches 131; Conservative 4; MisMatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTPETSTSPKFHTTYSTERSHFKPCRDKDILAYCLNDGECPVIEITLGSHK 60
Db 256 SSSSSATTTPETSTSPKFHTTYSTERSHFKPCRDKDILAYCLNDGECPVIEITLGSHK 315

Query Match 81.9%; Score 689.5; DB 5; Length 720;
Best Local Similarity 91.5%; Pred. No. 2e-58; Mismatches 5; Indels 4; Gaps 2;
Matches 130; Conservative 5; MisMatches 5; Indels 3; Gaps 2;

Qy 1 SSSSSATTTPETSTSPKFHTTYSTERSHFKPCRDKDILAYCLNDGECPVIEITLGSHK 60
Db 256 SSSSSATTTPETSTSPKFHTTYSTERSHFKPCRDKDILAYCLNDGECPVIEITLGSHK 315

Query Match 81.5%; Score 686.5; DB 2; Length 720;
Best Local Similarity 91.5%; Pred. No. 2e-58; Mismatches 5; Indels 4; Gaps 2;
Matches 130; Conservative 5; MisMatches 5; Indels 3; Gaps 2;

Qy 1 SSSSSATTTPETSTSPKFHTTYSTERSHFKPCRDKDILAYCLNDGECPVIEITLGSHK 60
Db 256 SSSSSATTTPETSTSPKFHTTYSTERSHFKPCRDKDILAYCLNDGECPVIEITLGSHK 315

Query Match 81.5%; Score 686.5; DB 2; Length 720;
Best Local Similarity 91.5%; Pred. No. 2e-58; Mismatches 5; Indels 4; Gaps 2;

Qy 61 HCRCEGYQGVRCDCQFLPKTDISLSDP-NHLGIEFMESEEVYQROVLISIICIFGIVVG 119
Db 316 HCRCEGYQGVRCDCQFLPKTDISLSDPTDHLGIEFMESEEVYQROVLISIICIFGIVVG 375

Qy 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKRKQ--AKQIQEQ 395

RESULT 8
ID ADN48890 standard; protein; 720 AA.
AC ADN48890;
DT 15-JUL-2004 (first entry)
XX Human heregulin-like factor (HLF) mutant protein.
XX HLF; heregulin-like factor; diagnosis; cancer; gene therapy; human; KW mutant; mutagen.
XX Homo sapiens.
OS Synthetic.
XX US6727077-B1.
DB Human heregulin-like factor sequence.
XX PD 27-APR-2004.
KW Human heregulin-like factor; HLF; cell growth regulator; diagnosis; neural system disorder; cancer.
XX PF 16-JUN-1998;
XX PR 17-JUN-1997;
XX PA (HUMA-) HUMAN GENOME SCI INC.
PA (GEOU) UNIV GEORGETOWN MEDICAL CENT.
XX PI Young PE, King CR, Hijazi M, Ruben SM;
XX DR WPI: 2004-338320/31.
XX PT New heregulin-like factor (HLF) nucleic acid or polypeptide, useful for preparing a composition for diagnosing or treating cancer.
XX PS Disclosure; SEQ ID NO 22; 48pp; English.
XX SQ Sequence 720 AA;

Query Match 81.5%; Score 686.5; DB 8; Length 720;
Best Local Similarity 91.5%; Pred. No. 2e-58; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTPETSTSPKFHTTYSTERSHFKPCRDKDILAYCLNDGECPVIEITLGSHK 60
Db 256 SSSSSATTTPETSTSPKFHTTYSTERSHFKPCRDKDILAYCLNDGECPVIEITLGSHK 315

Query Match 81.5%; Score 686.5; DB 8; Length 720;
Best Local Similarity 91.5%; Pred. No. 2e-58; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTPETSTSPKFHTTYSTERSHFKPCRDKDILAYCLNDGECPVIEITLGSHK 60
Db 256 SSSSSATTTPETSTSPKFHTTYSTERSHFKPCRDKDILAYCLNDGECPVIEITLGSHK 315

This sequence is the human heregulin-like factor (HLF) of the invention. The HLF is involved in the regulation of cell growth. Detection of different levels of expression of the HLF gene can be used for the diagnosis of disorders e.g. in the neural system. In particular, detection of different levels of HLF gene expression in cells or body fluid of an individual can be used for diagnosing cancer. The products

CC	polynucleotides and can be used to enhance the survival, proliferation or differentiation of cells having the ErbB4 receptor in vivo and in vitro.
CC	They can be used to prevent or treat damage to a nerve or damage to other
CC	NRG3-expressing or NRG3-responsive cells, e.g. brain, heart, or kidney
CC	cells. In particular, they can be used to treat diseases which involve
CC	neural cell growth such as demyelination, or damage or loss of glial
CC	cells (e.g. multiple sclerosis). They can be used to treat patients whose
CC	nervous system has been damaged by e.g. trauma, surgery, stroke,
CC	ischaemia, infection, metabolic disease, nutritional deficiency,
CC	malignancy, or toxic agents. NRG3 can be used to treat motor neuron
CC	disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease),
CC	Bell's palsy, conditions involving spinal muscular atrophy or paralysis,
CC	neurodegenerative disorders such as Alzheimer's disease, Parkinson's
CC	disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
CC	syndrome, nerve deafness, and Meniere's disease. They can also be used to
CC	treat neuropathies associated with systemic disease including post-polio
CC	syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease,
CC	Refsum's disease, abetalipoproteinemia, Tangier disease, Krabbe's
CC	disease, metachromatic leukodystrophy, Fabry's disease and Dejerine-
CC	Sottas syndrome, to treat disease of skeletal muscle of smooth muscle,
CC	such as muscular dystrophy or diseases caused by skeletal or smooth
CC	muscle wasting. The products can also be used for detection, diagnosis,
CC	for the production of transgenic or knockout animals or for drug
CC	screening
XX	
SQ	Sequence 713 AA;
	Query Match Similarity 80.1%; Score 674.5; DB 2;
	Best Local Similarity 90.7%; Pred. No. 3e-57;
	Matches 127; Conservative 6; Mismatches 4; Indels 3; Gaps 2;
Qy	2 SSSSATTTPETSTS PKFHHTTYS TERSEHFKPCRDKDLYCNDGECFVIELTGSHKH 61
Db	259 SSTSSTTPETSTS PKFHHTTYS TERSEHFKPCRDKDLYCNDGECFVIELTGSHKH 318
Qy	62 CRCKEGYQGVRCQDFLPKTDLSLSDP-NHGLIEFMSESEVYORVLSISCLIRGIVTYGM 120
Db	319 CRCKEGYQGVRCQDFLPKTDLSLSDPTDHLGIBFMESEDVYQRQLSLSCTIFGRVIVGM 378
Qy	121 FCAAFFPKSKRNTANVSVE 140
Db	379 FCAYFYFSKSKQ -AKQEQ 396
	RESULT 10
	ABG32061
ID	ABG32061 standard; protein; 713 AA.
	ABG32061;
AC	
XX	
DT	05-NOV-2002 (first entry)
XX	Mouse novel neuregulin related ligand NRG3 .
DE	
XX	Neuregulin related ligand; NRG3; neuroprotective; cell therapy;
KW	epidermal growth factor-like domain; Bell's Palsy;
KW	ErbB4 receptor; detection; amyotrophic lateral sclerosis; paralysis;
KW	lou Gehrig's disease; spinal muscular atrophy; multiple sclerosis;
KW	neurodegenerative disorder; Alzheimer's disease; Parkinson's disease;
KW	epilepsy; Huntington's chorea; Down's syndrome; nerve deafness;
KW	Meniere's disease; neuropathy; distal sensorimotor neuropathy;
KW	autonomic neuropathy; hereditary neuropathy; Charcot-Marie-Tooth disease;
KW	Krabbe's disease; Metachromatic leukodystrophy; Tangier disease;
KW	Dejerine-Scottas syndrome; mouse.
XX	Mus sp.
	Location/Qualifiers
Key	1. .362
Domain	/note= "extracellular domain, specifically claimed in
	Claim 5 (a)"
FT	66..91
FT	/note= "hydrophobic region"
Region	105..286
Region	/note= "mucin-like Ser/Thr-rich region, contains sites
	for O-linked glycosylation"
FT	287..334
Domain	/note= "EGF-like domain"
FT	363..385
Domain	/note= "transmembrane domain"
XX	
PN	WO9902681-A1.
	21-JAN-1999.
XX	
PR	30-JUN-1998; 98WO-US013411.
XX	
PR	09-JUL-1997; 97US-0052019P.
XX	
PR	24-JUL-1997; 97US-00899437.
XX	
(GETH)	GENENTECH INC.
XX	
Godowski PJ, Mark MR, Zhang D;	
XX	
WPI: 1999-120882/10.	
N-PSDB; AAX06387.	
	Claim 5(b) ; Page 59-62; 101pp; English.
XX	
This is the amino acid sequence of murine neuregulin related ligand NRG3 ,	
New isolated neuregulin related ligand-3 - used to develop products for	
treating nervous system disorders, e.g. stroke, ischaemia, infection,	
malignancy, Alzheimer's disease or Down's syndrome.	
CC	
CC	This is the amino acid sequence of murine neuregulin related ligand NRG3 ,
CC	a novel member of the epidermal growth factor (EGF)-like family of
CC	protein ligands that binds to the ErbB4 receptor, but not to the ErbB2 or
CC	ErbB3 receptor, and which activates ErbB4 receptor tyrosine
CC	phosphorylation. The sequence was deduced from the nucleotide sequences
CC	of cDNA clones (see AAX06387) from a mouse brain library. The EGF-like
CC	domain of NRG3 is distinct from those of NRG1 or NRG2, and NRG3 displays
CC	receptor binding characteristics that are distinct from those of other
CC	neuregulins. The invention provides human and murine NRG3 polypeptides
CC	(see also AAW97181), expression vectors, host cells and methods for the
CC	recombinant production of NRG3s. The NRG3 polypeptides and
CC	the invention product of NRG3s.
XX	
XX	Location/Qualifiers
Key	1..362
Domain	/label= Extracellular domain
	/note= "Specifically Claimed in claim 5"
FT	288..334
FT	Domain

PT /label= EGF-like domain
 PT /note= "Extracellular epidermal growth factor-like domain. Specifically claimed in claim 2."
 XX US2002082229-A1.

XX 27-JUN-2002.

XX 26-MAR-2001; 2001US-00817647.

PR 24-JUL-1997; 97US-0053641P.

PR 30-JUN-1998; 98US-00107979.

PA (GETH) GENENTECH INC.
 XX Godowski PJ, Mark MR, Zhang D;
 XX WPI; 2002-617760/66.
 DR N-PSDB; ABL90728.

XX A new neuregulin related ligand designated NRG3 has an epidermal growth factor-like domain and binds to Erbb4 receptor, and is useful to prevent or treat NRG3 associated disorders, particularly nerve damage.
 XX Example 1; Fig 4A-B; 60pp; English.
 XX The invention describes a polypeptide comprising an amino acid sequence encoding an epidermal growth factor (EGF)-like domain, and having the binding characteristics of neuregulin related ligand (NRG3). NRG3 polypeptide can be used to detect Erbb4 receptor in a mammalian tissue sample, and also to prevent or treat disorders associated with NRG3 such as: amytrophic lateral sclerosis (Lou Gehrig's disease), Bell's palsy and various conditions involving spinal muscular atrophy or paralysis, neurodegenerative disorders such as Alzheimer's disease, Parkinson's disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's syndrome, nerve deafness, Meniere's disease, neuropathy such as distal sensorimotor neuropathy or autonomic neuropathy, hereditary neuropathies such as Charcot-Marie-Tooth disease, Krabbe's disease, Metachromatic leukodystrophy, Fabry's disease and Dejerine-Scotomas syndrome. This is the amino acid sequence of the novel mouse neuregulin related ligand (NRG3).

XX Sequence 713 AA;

XX Query Match 80.1%; Score 674.5; DB 5; Length 713;
 Best Local Similarity 90.7%; Pred. No. 3e-57; Matches 6; Mismatches 4; Indels 3; Gaps 2;
 Matches 127; Conservative
 Qy 2 SSSATTTPETSTSPKFRTTYSTSRSEHPKPCRDKDLYCLNDGECFYIETLGSKH 61
 Db 259 SSTSSTTTPETSTSPKFRTTYSTSRSEHPKPCRDKDLYCLNDGECFYIETLGSKH 318
 Qy 62 CRCKEGYQYRCDQFLPKTDLSILSDP-NHIGIEFMESSEVYQRQLSISCIIFGIVGM 120
 Db 319 CRCKEGYQYRCDQFLPKTDLSILSDPDTLGEPEMSEDVYQRQLSISCIIFGIVGM 378
 Qy 121 FCAAFTPKSKRNITANVSSE 140
 Db 379 FCAAFTPKSKRQ-AKQIQE 396

RESULT 11
 ABB08776 ID ABB08776 standard; protein; 502 AA.
 XX DE Human neuregulin 55 SEQ ID NO 2.
 XX DE Human; neuregulin 55; nervous system; development; neuropathology;
 XX DT 16-MAY-2002 (first entry)
 XX DT 16-MAY-2002 (first entry)
 XX DT 10-MAY-1999 (first entry)
 XX DE Human neuregulin related ligand NRG3 extracellular domain.
 XX DE Homo sapiens.
 XX KW Neuregulin related ligand; NRG3; hNRG3B1; human; ErbbB4 receptor;
 XX KW signal transduction; nervous system disorder; neurodegeneration;
 XX KW neuropathy; therapy; diagnosis.
 XX OS XX
 XX AC AC
 XX DT 10-MAY-1999
 XX DE Human neuregulin 55 SEQ ID NO 2.
 XX DE Human; neuregulin 55; nervous system; development; neuropathology;
 XX DT 21-JAN-1999.

KW tumour; inflammation; immunological disease.
 XX OS Homo sapiens.

XX CN1324826-A.

XX 05-DEC-2001.

XX 19-MAY-2000; 20000CN-00115761.

PR 19-MAY-2000; 20000CN-00115761.

XX PA (BODE-) BODE GENE DEV CO LTD SHANGHAI.

XX PI Mao Y, Xie Y;

XX WPI; 2002-217507/28.

DR N-PSDB; ABL41244.

XX New polypeptide human neuregulin 55 and polynucleotides for encoding same.

PS Claim 1; Page 27-28 (Disclosure); 35pp; Chinese.

XX PT PT

PS PT same.

XX PS Claim 1; Page 27-28 (Disclosure); 35pp; Chinese.

XX CC The invention relates to human neuregulin 55, polynucleotide for coding this polypeptide and a method for producing this polypeptide by using DNA recombination technique. The invention also discloses the method for curing several diseases, such as nervous system developmental diseases, neuropsychopathy, other nervous system diseases, development disturbance, tumours, inflammations and immunological disease by using said polypeptide. The invention also discloses an antagonist for resisting said polypeptide and its therapeutic action and also discloses the application of polynucleotide to coding this novel human neuregulin 55.

CC The present sequence is that of human neuregulin 55

XX SQ Sequence 502 AA;

XX	30-JUN-1998;	98WO-US013411.		
PP	09-JUL-1997;	97US-0052019P.		
XX	24-JUL-1997;	97US-00899437.		
PA	(GETH) GENENTECH INC.			
XX	Godowski PJ,	Mark MR,	Zhang D;	
DR	WPI:	1999-120882/10.		
XX	PT	New isolated neuregulin related ligand-3 - used to develop products for treating nervous system disorders, e.g. stroke, ischaemia, infection, malignancy, Alzheimer's disease or Down's syndrome.		
XX	PT	Claim 5 (a) : Page 69-70; 101pp; English.		
CC	CC	This is the extracellular domain (ECD), aal-360 of human neuregulin related ligand NRG3 (see also AAW97618), a novel member of the epidermal growth factor (EGF)-like family of protein ligands. NRG3 binds to the Erbb4 receptor, but not to the Erbb2 or Erbb3 receptor, activates Erbb4 receptor tyrosine phosphorylation. The invention provides human and murine polypeptides (see also AAW97617) that have at least 75% homology to the NRG3 ECD, as well as expression vectors, host cells and methods for the recombinant production of novel NRG3s. The NRG3 polypeptides and polynucleotides can be used to enhance the survival, proliferation or differentiation of cells having the Erbb4 receptor in vivo and in vitro. They can be used to prevent or treat damage to a nerve or damage to other NRG3-expressing or NRG3-responsive cells, e.g. brain, heart, or kidney cells. In particular, they can be used to treat diseases which involve neural cell growth such as demyelination, or damage or loss of glial cells (e.g. multiple sclerosis). They can be used to treat patients whose nervous system has been damaged by e.g. trauma, surgery, stroke, ischaemia, infection, metabolic disease, nutritional deficiency, malignancy, or toxic agents. NRG3 can also be used to treat motor neuron disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease), Bell's palsy, conditions involving spinal muscular atrophy or paraparesis, neurodegenerative disorders such as Alzheimer's disease, Parkinson's disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's syndrome, nerve deafness, and Meniere's disease. They can also be used to treat neuropathies associated with systemic disease including post-polio syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease, Refsum's disease, abetalipoproteinemia, Tangier disease, Krabbe's disease, metachromatic leukodystrophy, Fabry's disease and Dejerine-Sottas syndrome, to treat disease of skeletal muscle of smooth muscle, such as muscular dystrophy or diseases caused by skeletal or smooth muscle wasting. The products can also be used for detection, diagnosis, for the production of transgenic or knockout animals or for drug screening.		
CC	CC	Sequence 360 AA;	Query Match	65.6%; Score 552.5; DB 2; Length 360;
CC	CC	Best Local Similarity 98.1%; Pred. No. 1.2e-45; Indels 1; Gaps 1; Matches 103; Conservative 1; Mismatches 0;	Best Local Similarity	95.2%; Score 539.5; DB 2; Length 362;
Qy	1	SSSSSATTPETSTSPKFHTTYSSTERSEHFKPCRDLDAYCLNDGECFVETLTGSHK 60	Qy	2 SSSSATTPETSTSPKFHTTYSSTERSEHFKPCRDLDAYCLNDGECFVETLTGSHK 61
Db	256	SSSSATTPETSTSPKFHTTYSSTERSEHFKPCRDLDAYCLNDGECFVETLTGSHK 315	Db	259 SSSSATTPETSTSPKFHTTYSSTERSEHFKPCRDLDAYCLNDGECFVETLTGSHK 318
Qy	61	HCRCKEGYQGYRCQDFOLPKTDLSLSDP-NHLGIEFMESEEVYQRQ 104	Qy	61 HCRCKEGYQGYRCQDFOLPKTDLSLSDP-NHLGIEFMESEEVYQRQ 360
Db	316	HCRCKEGYQGYRCQDFOLPKTDLSLSDP-NHLGIEFMESEEVYQRQ 360	Db	316 HCRCKEGYQGYRCQDFOLPKTDLSLSDP-NHLGIEFMESEEVYQRQ 360
RES13	AAW97620	standard; protein; 362 AA.	RES13	AAW97620
ID	AAW97620		ID	AAW97620
XX			XX	
				Gaps

Qy 62 CRCKEGYQGYRCQDQFLPKTSDILSDF-NHIGIEFMESEEVYQRO 104
 Db 319 CRCKEGYQGYRCQDQFLPKTSDILSDF-NHIGIEFMESEEVYQRO 362

RESULT 14
 AAE36807 standard; protein; 52 AA.
 AC AAE36807;
 XX DT 07-AUG-2003 (first entry)
 DE Human neuregulin 3 EGF-like domain.
 XX KW growth factor receptor; EGFR; therapy; psoriasis; carcinoma;
 KW cancer; rhabdomyosarcoma; mesothelioma; melanoma; glioblastoma; human;
 KW receptor; BGF; neuregulin 3.
 OS Homo sapiens.
 XX PN WO2003014159-A1.
 XX PD 20-FEB-2003.
 XX PF 05-AUG-2002; 2002WO-AU001042.

XX PR 03-AUG-2001; 2001AU-00006827.
 PR 03-AUG-2001; 2001AU-00006828.
 PR 01-NOV-2001; 2001US-0335393P.
 PR 01-NOV-2001; 2001US-0335650P.
 PR 31-MAY-2002; 2002AU-00002731.
 PR 11-JUN-2002; 2002US-0388171P.
 PA (CSTR) COMMONWEALTH SCI & IND RES ORG.
 PA (BION-) BIOMOLECULAR RES INST LTD.
 PA (HAUL-) HALL INST MEDICAL RES WALTER & ELIZA.
 PA (LUDW-) LUDWIG INST CANCER RES.

XX DR WPI: 2003-268181/26.
 XX PI Adams TE, Burgess AW, Elleman TC, Garrett TPJ, Jorissen RN;
 Lou M, Lovrecz GO, McKern NM, Nice EC, Ward CW,
 XX DR WPI: 2003-268181/26.

XX Selecting or designing compounds that interact with or inhibit formation
 PT of active dimers of the EGF receptor family, and useful for the
 PT prevention and treatment of disorders, such as psoriasis and cancer of
 PT the breast, brain or colon.
 PS Disclosure; Fig 2; 354pp; English.

XX The invention relates to a method of selecting or designing a compound
 CC that interacts with or inhibits the formation of active dimers of a
 CC receptor of the epidermal growth factor receptor (EGFR) family. The
 CC methods and compositions of the invention are useful for the prevention
 CC and treatment of disorders associated with signalling by a molecule of
 CC the EGFR family such as psoriasis and cancer of the pancreas, breast,
 CC brain, colon, prostate, ovary, cervix, lung, head and neck, melanoma,
 CC rhabdomyosarcoma, mesothelioma, squamous carcinomas of the skin and
 CC glioblastomas. The present sequence is epidermal growth factor (EGF) like
 CC domain of human neuregulin 3 protein. This sequence is used to illustrate
 CC the method of the invention

XX Sequence 52 AA;
 Qy 36.2%; Score 305; DB 6; Length 52;
 Best Local Similarity 100.0%; Pred. No. 2.2e-22;
 Matches 52; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 Db 30 EHFKPCRDQLDAYCLNDGECFVIETLTGSHKHRCKEGYQGVRCQFL 77
 1 EHFKPCRDQLDAYCLNDGECFVIETLTGSHKHRCKEGYQGVRCQFL 48

Qy 33.5%; Score 282; DB 5; Length 48;
 Best Local Similarity 100.0%; Pred. No. 3.7e-20;
 Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 Db 30 EHFKPCRDQLDAYCLNDGECFVIETLTGSHKHRCKEGYQGVRCQFL 77
 1 EHFKPCRDQLDAYCLNDGECFVIETLTGSHKHRCKEGYQGVRCQFL 48

Search completed: July 13, 2005, 20:24:53
 Job time : 163 secs

RESULT 15
 AAG66046 standard; peptide; 48 AA.
 AC AAG66046;
 XX DT 27-FEB-2002 (first entry)
 DE Mouse NRG-3 EGF-like motif sequence.
 XX KW Erbb-4; neuregulin-4; NRG-4; pro-NRG-4; neuroprotective; vulnerability;
 KW cerebroprotective; vasoconstrictive; antiparkinsonian; anticonvulsant;
 KW cytostatic; nectopic; BGF; NRG-3.
 XX OS Mus musculus.
 XX PN WO200181540-A2.
 XX PD 01-NOV-2001.
 XX PI Harrari D, Yarden Y;
 XX DR WPI: 2002-041398/05.
 XX PT Novel Erbb-4 ligand, referred as neuregulin (NRG)-4 and polynucleotide
 PT sequences encoding NRG-4, useful for upregulating or downregulating Erbb-
 PT 4 receptor activity to treat Alzheimer's disease, stroke, gastric cancer.
 XX Disclosure; Fig 1c; 154pp; English.

CC The invention relates to a novel Erbb-4 ligand, neuregulin-4 (NRG-4). NRG
 CC -4 binds to mammalian Erbb-4 receptor and can be expressed by standard
 CC recombinant methodology. Pharmaceutical compositions comprising NRG-4 are
 CC useful for regulating an endogenous protein affecting Erbb-4 receptor
 CC activity in vivo. They are also useful for treating or preventing a
 CC disease condition or syndrome associated with disarray of an
 CC endogenous protein affecting Erbb-4 receptor activity, e.g., amyotrophic
 CC lateral sclerosis ('Lou Gehrig' disease), Bell's palsy, spinal muscular
 CC atrophy, brain trauma, stroke, ischemia, Alzheimer's disease, Parkinson's
 CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
 CC syndrome, nerve deafness, neuropathy, muscular dystrophy, extramammary
 CC Paget's disease, gastric, pancreatic, prostate, breast and ovarian
 CC cancer, cervical carcinoma, endometrial adenocarcinoma, pancreatic D
 CC cells-b-somatostatinoma and Zollinger-Ellison syndrome. The agent comprised
 CC in the pharmaceutical composition includes a polypeptide (e.g., a soluble
 CC ligand binding domain of Erbb-4 i.e., IgB4; or a monoclonal, polyclonal,
 CC humanized, single chain antibody or an immunoreactive derivative of an
 CC antibody) capable of binding the endogenous protein affecting Erbb-4
 CC receptor activity. Traceable synthetic recombinant NRG-4-tagged molecules
 CC can serve as a diagnostic tool in which cells binding NRG-4 can be
 CC measured. Sequences AAG66044-53 represent the EGF-like motifs of various
 CC growth factors
 XX Sequence 48 AA;

Qy 33.5%; Score 282; DB 5; Length 48;
 Best Local Similarity 100.0%; Pred. No. 3.7e-20;
 Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 30 EHFKPCRDQLDAYCLNDGECFVIETLTGSHKHRCKEGYQGVRCQFL 77
 1 EHFKPCRDQLDAYCLNDGECFVIETLTGSHKHRCKEGYQGVRCQFL 48

Page 2

Mol. Cell. Biol. 14, 1909-1919, 1994						
A:Title: Structural and functional aspects of the multiplicity of Neu differentiation factors						
A:Reference number: A56210; MUID:9415883; PMID:7509448						
A:Accession: I38406						
A:Status: preliminary						
A:Molecule type: mRNA						
A:Residues: 'A', '95-418', 'F', '420-645' <RES>						
A:Cross-references: EMBL:U02228; NID:9408406; PIDN:AAA19953.1; PID:9408407						
A:Genetics:						
A:Gene: GDB:HGL						
A:Cross references: GDB:132656; OMIM:142445						
A:Map position: 8p22-8p11						
C:Superfamily: human heregulin; EGF homology; immunoglobulin homology						
C:Keywords: alternative splicing						
F:182-221/Domain: EGF homology <EGF>						
Query Match Score 27.9%; DB 2; Length 645;						
Best Local Similarity 35.9%; Pred. No. 4.6e-14;						
Matches 46; Conservative 31; Mismatches 40; Indels 11; Gaps 3;						
Qy 5 SATTTPETSPKTTTYYSTERSHFKPQRDKDYLAYCLNDGEFCVIELTGSHKH-CR 63						
Db 157 SVSIEGANTSSSS----TSSTTTGTSHLVKAEEKTKFCYNGGECPVKDLSNPNSRVLCK 211						
Qy 64 CKEGYQGVRCDFQLPKRTDSLSDPPLHGLIEPMEESEEVYQROYVLISIICIFGIVIVGMFCA 123						
Db 212 CPNEFTGDRCONYV----MASPYKHLGIEFMEEAELYQKRVLTINGCIALLVGIMCV 266						
Qy 124 AFYFKSKR 131						
Db 267 VAYCRRKK 274						
RESULT 3						
A45769 acetylcholine receptor synthesis stimulator ARIA-1 precursor - chicken						
C:Species: Gallus gallus (chicken)						
C:Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 09-Jul-2004						
C:Accession: A45769						
R:Failles, D.L.; Rosen, K.M.; Corfas, G.; Lane, W.S.; Fischbach, G.D.						
Cell 72, 801-815, 1993						
A:Title: ARIA, a protein that stimulates acetylcholine receptor synthesis, is a member of a new family of proteins that regulate acetylcholine receptor synthesis						
A:Reference number: A45769; MUID:93201602; PMID:8453670						
A:Accession: A45769						
A:Status: preliminary						
A:Molecule type: mRNA; protein						
A:Residues: 1-602 <FAL>						
A:Cross-references: UNIPROT:Q05199; GB:L11264; NID:9212603; PIDN:AAA19937.1; PID:9212604						
A:Experimental source: brain						
A:Note: sequence extracted from NCBI backbone (NCBIN:127787, NCBIP:127788)						
C:Superfamily: human heregulin; EGF homology; immunoglobulin homology						
Query Match Score 26.7%; DB 2; Length 602;						
Best Local Similarity 35.6%; Pred. No. 3.6e-13;						
Matches 47; Conservative 27; Mismatches 43; Indels 15; Gaps 3;						
Qy 1 SSSSSATTTPETSPKTTTYSTERSEHFKPQRDKDYLAYCLNDGEFCVIELTGSHK 60						
Db 116 TKASVITTDNATSP-----STGTGSHLTKCDIKOKAFCVNGECEYMWKDLPNPPR 166						
Qy 61 H-CRKCEGYGVRCDFQLPKRTDSLSDPPLHGLIEPMEESEEVYQROYVLISIICIFGIVVG 119						
Db 167 YLCRCPNEFTGDRCONYV----MASPYKHLGIEFMEEAELYQKRVLTINGCIALLVVG 221						
Qy 120 MFCAAFFYSKR 131						
Db 222 IMCVVAYCRRKK 233						
RESULT 4						
161719 rat neu differentiation factor - rat						
C:Species: Rattus norvegicus (Norway rat)						

Db	157 SVSTEAGNTSSS-----TSTSTGTSHLKAERKEKTFCVNGGCFPTVDSLNSPRLCK	211	A;Residues: 1-350 <RES> C;Cross-references: EMBL:U02325; NID:9408400; PID:AAA19950.1; PID:9408401 C;Superfamily: human heregulin; EGF homology; immunoglobulin homology
Qy	64 CKEGYQGVRCDDQFLPKTDLSILSDPMLGIEFMEBEVYQROVISIISCTIFGIVIVGMCA	123	Query Match 22.7%; Score 191.5; DB 2; Length 350; Best Local Similarity 38.4%; Pred. No. 2.4e-10; Matches 33; Conservative 26; Mismatches 24; Indels 3; Gaps 2;
Db	212 CPNEPTGDRQ-----NYVMASFYKABEELIQKRVLTITGICIAALLVVGIMCV	258	Qy 47 GBCPFLIEPLTGSHKH-CRCKEGYQGVRCDDQFLPKTDLSILSDPMLGIEFMEBEVYQROVQV 105 Db 1 GBCPMMXDLNSPRLCKCQPGFTGARCTENVFM-KVQNQEKHLGIEFIEABELYQKRV 58
Qy	124 AFYFKSKRNITANSVSEERMKGLPSQEPLN 153		Qy 106 LSISCLTIFGIVIVGMCAAFYFKSKR 131 Db 59 LTTGICIAALLVGMCVVAYCKTKK 84
Db	259 VAYCCKTKQ--ROKLHDLRQLRSRSRSNL 286		
RESULT 9			
C43273	heregulin precursor, splice form beta-2 - human		
C;Species: Homo sapiens (man)			
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 08-Sep-2002			
C;Accession: C43273; I38407			RESULT 11
R;Holmes, W.E.; Sliwkowski, M.X.; Akita, R.W.; Henzel, W.J.; Lee, J.; Park, J.W.; Yansur Science 256, 1205-1210, 1992			I67172 neu differentiation factor - rat
A;Title: Identification of heregulin, a specific activator of p185(erbB2).			C;Species: Rattus norvegicus (Norway rat)
A;Reference number: A43273; MUID:92271253; PMID:1350381			C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 09-Jul-2004
A;Accession: C43273			C;Accession: I61722 R;Ren, D.; Suggs, S.V.; Karunagaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.; Mol. Cell. Biol. 14, 1909-1919, 1994
A;Status: Preliminary; nucleic acid sequence not shown; not compared with conceptual tra			A;Title: Structural and functional aspects of the multiplicity of Neu differentiation fac
A;Molecule type: mRNA			A;Reference number: A56210; MUID:94158663; PMID:7509448
A;Residues: 1-637 'HOL'			A;Status: preliminary; translated from GB/EMBL/DDBJ
R;Wen, D.; Suggs, S.V.; Karunagaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.; Mol. Cell. Biol. 14, 1909-1919, 1994			A;Accession: I61722 A;Residues: 1-662 <RES>
A;Title: Structural and functional aspects of the multiplicity of Neu differentiation fa			A;Cross-references: UNIPROT:P43322; EMBL:U02322; NID:9408394; PID:AAA19947.1; PID:940833:
A;Molecule type: mRNA			C;Superfamily: human heregulin; EGF homology; immunoglobulin homology
A;Residues: 119-406 <RES>			F;182-221/Domain: EGF homology <EGF>
A;Cross-references: EMBL:U02329; NID:9408408; PID:AAA19954.1; PID:9408409			Query Match 22.5%; Score 189.5; DB 2; Length 662; Best Local Similarity 27.0%; Pred. No. 7.5e-10; Matches 44; Conservative 39; Mismatches 59; Indels 21; Gaps 5;
C;Genetics:			Qy 5 SATTTPETSTSPLKFHTTYSTERSEHFPKPCRDKDLYCLNDGBCFVETLTGSHKH-CR 63 Db 157 SVSTEGANTSSS----TSTSTGTTGSHLIKCAEKTPCVCNGGCFYKDLSNPSRYLCK 211
A;Gene: GDB:icl			Query Match 22.5%; Score 189.5; DB 2; Length 662; Best Local Similarity 27.0%; Pred. No. 7.5e-10; Matches 44; Conservative 39; Mismatches 59; Indels 21; Gaps 5;
A;Cross-references: GDB:132656; OMIM:142445			Qy 64 CKEGYQGVRCDDQFLPKTDLSILSDPMLGIEFMEBEVYQROVLSIC 110 Db 212 CPNEFTGDRQCNQTVMASYMTSRKRQFTEKPLRDLHSVLYKEFQRLVLTG 271
A;Map position: 8p22-8p11			Query Match 23.3%; Score 196.5; DB 2; Length 637; Best Local Similarity 30.5%; Pred. No. 1.6e-10; Matches 39; Conservative 31; Mismatches 39; Indels 19; Gaps 3;
C;Superfamily: human heregulin; EGF homology; immunoglobulin homology			Qy 5 SATTTPETSTSPLKFHTTYSTERSEHFPKPCRDKDLYCLNDGBCFVETLTGSHKH-CR 63 Db 157 SVSTEGANTSSS----TSTSTGTTGSHLIKCAEKTPCVCNGGCFYKDLSNPSRYLCK 211
C;Keywords: alternative splicing <EGF>			Query Match 23.3%; Score 196.5; DB 2; Length 637; Best Local Similarity 30.5%; Pred. No. 1.6e-10; Matches 39; Conservative 31; Mismatches 39; Indels 19; Gaps 3;
F;182-221/Domain: EGF homology <EGF>			Qy 111 IIFGIVIVGMCAAFYFKSKRNITANSVSEERMKLPSQEPLN 153 Db 272 ICLALVYGMCVVAYCCKTKQ--ROKLHDLRQLRSRSNL 312
Qy	64 CKEGYQGVRCDDQFLPKTDLSILSDPMLGIEFMEBEVYQROVISIISCTIFGIVIVGMCA	123	RESULT 12 JC5702 Erbb kinase activator alpha2a, brain and thymus - rat
Db	212 CPNEPTGDRQ-----NYVMASFYKABEELIQKRVLTITGICIAALLVVGIMCV	258	C;Species: Rattus norvegicus (Norway rat) C;Accession: JC5702; PC4417 R;Bigashiyama, S.; Horikawa, M.; Yamada, K.; Ichino, N.; Nakagawa, T.; Miyagi, J. Biochem. 122, 675-680, 1997 A;Title: A novel brain-derived member of the epidermal growth factor family that interact A;Reference number: JC5700; MUID:98006324; PMID:9348101 A;Accession: JC5702 A;Molecule type: mRNA A;Residues: 1-860 <HIG> A;Cross-references: UNIPROT:O35569; DDBJ:D89996; NID:92605631; PID:BAA23345.1; PID:g260!
RESULT 10			
T3403	neu differentiation factor - human (fragment)		
C;Species: Homo sapiens (man)			
C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 08-Sep-2002			
C;Accession: I38403			
R;Ren, D.; Suggs, S.V.; Karunagaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.; Mol. Cell. Biol. 14, 1909-1919, 1994			
A;Title: Structural and functional aspects of the multiplicity of Neu differentiation fa			
A;Accession: I38403			
A;Status: preliminary; translated from GB/EMBL/DDBJ			
A;Molecule type: mRNA			

A;Experimental source: PC-12 cell
 C;Comment: This protein is a member of the epidermal growth factor family. It is functional during the differentiation of MDA-MB-453 cells.
 C;Superfamily: human Erbb kinase activator alpha, brain and thymus; EGF homology; immunoglobulin homology
 C;Keywords: Glycoprotein
 F;P:74-327/Domain: Ig-like #status predicted <IGL>
 P;P:61-397/Domain: EGF homology <EGF>
 F;P:422-444/Domain: hydrophobic #status predicted <HYD>
 F;P:163, 294, 467/Binding site: carbohydrate (Asn) (covalent) #status predicted
 Query Match Score 171; DB 2; Length 860;
 Best Local Similarity 31.6%; Pred. No. 5.3e-08;
 Matches 37; Conservative 26; Mismatches 42; Indels 12; Gaps 4;
 Qy 18 KFHHTTYSSTERSE--HFPCRDKDLAYC1NDGECFVIETLTGSHKHCRCKEGYQGVRCDF 74
 Db 341 RLHVNVSITLSSWGHARKCNETAKSYCNGVCYIEGI-NQLSCKCPNGFFGQRCL 398
 Qy 75 QFLPKTDIISLSDPNHLGIEFMESEEVYQQLVLSITSCIIFGIVGMFCAAFYFKSKR 131
 Db 399 EKLPLRLYMPDPK----QKAELYYQKRVLTITGICVALLVIVGIVCVVAYCKTKK 448

RESULT 15
 I38A05
 neu differentiation factor - human (fragment)
 C;Species: Homo sapiens (man)
 C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 08-Sep-2002
 C;Accession: I38A05
 R;Wan, D.; Suggs, S.V.; Karunagaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.; Mol. Cell. Biol. 14, 1909-1919, 1994
 A;Title: Structural and functional aspects of the multiplicity of Neu differentiation factors
 A;Reference number: A56210; PMID:94158863; MUID:94158863
 A;Accession: I38A05
 A;Molecule type: mRNA
 A;Residues: 1-125 <RES>
 A;Cross-references: EMBL:U0327; NID:5408404; PIDN:AA119952.1; PID:9408405
 C;Superfamily: human heregulin; EGF homology; immunoglobulin homology
 Query Match Score 137; DB 2; Length 125;
 Best Local Similarity 33.3%; Pred. No. 9.6e-06;
 Matches 25; Conservative 19; Mismatches 25; Indels 6; Gaps 2;
 Qy 5 SATTTPETSTS PKHHTTYSSTERSEHFPCRDKDLAYC1NDGECFVIETLTGSHKH-CR 63
 Db 35 SVSTGANTSSS----STSTGTSHLVKCAKEKTFCVNGGECFMVKDLNSPRYLC 89
 Qy 64 CKEGYQGVRCDDQELP 78
 Db 90 CQPGRTGARTENVP 104

Search completed: July 13, 2005, 20:28:38
 Job time : 39 secs

A;Molecule type: mRNA
 A;Residues: 1-296 <HOA>
 A;Cross-references: UNIPROT:Q15491; PIDN:AA41764.1; PID:9862423
 C;Superfamily: human heregulin; EGF homology; immunoglobulin homology
 F;237-276/Domain: EGF homology <EGF>
 Query Match Score 140; DB 2; Length 296;
 Best Local Similarity 32.5%; Pred. No. 1.3e-05;
 Matches 25; Conservative 19; Mismatches 31; Indels 2; Gaps 2;
 Qy 2 SSSATTTPETSTS PKHHTTYSSTERSEHFPCRDKDLAYC1NDGECFVIETLTGSHKH 61
 Db 205 SATQDTTETNLQTAPKLSST-STGTSHLVKCAKEKTFCVNGGECFMVKDLNSPRY 263
 Qy 62 -CRCKEGYQGVRCDDQFL 77
 Db 264 LCKCPCNEFTGDRQCQNYV 280

RESULT 16
 I38A05
 neu differentiation factor - human (fragment)
 C;Species: Homo sapiens (man)
 C;Accession: I38A05
 R;Wan, D.; Suggs, S.V.; Karunagaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.; Mol. Cell. Biol. 14, 1909-1919, 1994
 A;Title: Structural and functional aspects of the multiplicity of Neu differentiation factors
 A;Reference number: A56210; PMID:94158863; MUID:94158863
 A;Accession: I38A05
 A;Molecule type: mRNA
 A;Residues: 1-125 <RES>
 A;Cross-references: EMBL:U0327; NID:5408404; PIDN:AA119952.1; PID:9408405
 C;Superfamily: human heregulin; EGF homology; immunoglobulin homology
 Query Match Score 137; DB 2; Length 125;
 Best Local Similarity 33.3%; Pred. No. 9.6e-06;
 Matches 25; Conservative 19; Mismatches 25; Indels 6; Gaps 2;
 Qy 5 SATTTPETSTS PKHHTTYSSTERSEHFPCRDKDLAYC1NDGECFVIETLTGSHKH-CR 63
 Db 35 SVSTGANTSSS----STSTGTSHLVKCAKEKTFCVNGGECFMVKDLNSPRYLC 89
 Qy 64 CKEGYQGVRCDDQELP 78
 Db 90 CQPGRTGARTENVP 104

Search completed: July 13, 2005, 20:28:38
 Job time : 39 secs

RESULT 14
 A56943 sensory/motor neuron-derived factor - human
 C;Species: Homo sapiens (man)
 C;Date: 18-Aug-1995 #sequence_revision 18-Aug-1995 #text_change 09-Jul-2004
 C;Accession: A56943
 R;Ho, W.H.; Armanini, M.P.; Nuijens, A.; Phillips, H.S.; Osheroff, P.L.
 J. Biol. Chem. 270, 14523-14532, 1995
 A;Title: Sensory and motor neuron-derived factor. A novel heregulin variant highly expressed
 A;Reference number: A56943; MUID:95301541; PMID:7782315
 A;Accession: A56943
 A;Status: preliminary; not compared with conceptual translation

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GenCore version 5.1.6						
Copyright (c) 1993 - 2005 Compugen Ltd.						
M protein - protein search, using sw model						
run on: July 13, 2005, 20:17:46 ; Search time 174 Seconds (without alignments)						
post-processing: Minimum Match 0% Maximum Match 100%						
Title: US-10-609-370-2						
Perfect score: 842						
Sequence: 1 SSSSSATTTPETSTSPKFKH.....VSEWRKGGLPSQEQEPNLQQDK 157						
scoring table: BLOSUM62						
Gapop 10.0 , Gapext 0.5						
searched: 1612378 seqs, 512079187 residues						
Total number of hits satisfying chosen parameters: 1612378						
Minimum DB seq length: 0						
Maximum DB seq length: 2000000000						
Searched: 1612378 seqs, 512079187 residues						
Score: 1612378						
Database : UniProt 03: 1: Uniprot_spref: 2: uniprot_trembl: *						
Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.						
SUMMARIES						
No.	Score	Query	Match	Length	DB ID	Description
1	689.5	NRG3_HUMAN	720	1	NRG3_MOUSE	P56975 homo sapien
2	674.5	NRG3_HUMAN	713	1	NRG3_MOUSE	Q35181 mus musculu
3	251.5	NRG3_HUMAN	700	2	NRG3_MOUSE	Q9ESB1 rattus norv
4	249.5	NRG3_HUMAN	700	2	NRG3_MOUSE	Q6dr99 mus musculu
5	235.5	NRG3_HUMAN	782	2	NRG3_MOUSE	Q9esa5 rattus norv
6	234.5	NRG3_HUMAN	782	2	NRG3_MOUSE	Q7RTW4 homo sapien
7	233.5	NRG3_HUMAN	645	2	NRG3_MOUSE	Q6dr98 mus musculu
8	233.5	NRG3_HUMAN	677	1	NRG1_XENLA	Q93381 xenopus lae
9	224.5	NRG3_HUMAN	602	1	NRG1_CHICK	Q05199 gallus gall
10	219	NRG3_HUMAN	298	2	NRG3_HUMAN	Q9esa9 rattus norv
11	219	NRG3_HUMAN	695	2	NRG3_HUMAN	Q9esb0 rattus norv
12	208	NRG3_HUMAN	756	1	NRG2_MOUSE	P56974 mus musculu
13	203	NRG3_HUMAN	461	2	O35947 mesocricetus auratus	Q35947 mesocricetu
14	201	NRG3_HUMAN	394	2	O6Tgk9 oryctoligus	Q6Tgk9 oryctoligus
15	201	NRG3_HUMAN	462	2	QTRTW1	Q7RTW1 homo sapien
16	201	NRG3_HUMAN	639	1	NRG1_HUMAN	Q02297 h. pro-neure
17	201	NRG3_HUMAN	640	2	QTRTW8	Q7RTW8 homo sapien
18	199	NRG3_HUMAN	868	1	NRG2_MOUSE	Q56959 rattus norv
19	196.5	NRG3_HUMAN	637	2	QTRTW3	Q7RTW3 homo sapien
20	189.5	NRG3_HUMAN	662	1	NRG1_RAT	P43322 r. pro-neure
21	166	NRG3_HUMAN	850	1	NRG2_HUMAN	Q01511 homo sapien
22	156	NRG3_HUMAN	76	2	O810X0	Q810X0 mus musculu
23	143.5	NRG3_HUMAN	111	2	Q9ESA8	Q9esa8 rattus norv
24	140	NRG3_HUMAN	296	1	SMDF_HUMAN	Q1491 homo sapien
25	140	NRG3_HUMAN	166	2	O961B3	Q961B3 homo sapien
26	140	NRG3_HUMAN	296	2	Q61CV5	Q61CV5 homo sapien
27	140	NRG3_HUMAN	296	2	Q7RTW2	Q7RTW2 homo sapien
28	138	NRG3_HUMAN	164	2	O8BX76	Q8bx76 mus musculu
29	137	NRG3_HUMAN	136	2	Q9ESA7	Q9esa7 rattus norv
30	137	NRG3_HUMAN	256	2	Q9SA7	Q9sa7 r. pro-neure
31	153	NRG3_HUMAN	115	1	NRG4_MOUSE	Q9wtX4 mus musculu
32	128	NRG3_HUMAN	152	2	Q07112	Q07112 bos taurus
33	127	NRG3_HUMAN	151	1	NRG4_HUMAN	Q8wng1 homo sapien
34	124.5	NRG3_HUMAN	148	2	Q7RTW9	Q7rtw9 homo sapien
35	123.5	NRG3_HUMAN	147	1	SPIT_DROME	Q01083 diosophila
36	123.5	NRG3_HUMAN	147	2	Q9EST3	Q9esa3 rattus norv
37	123	NRG3_HUMAN	146	2	Q6PK61	Q6pk61 homo sapien
38	123	NRG3_HUMAN	146	1	Q7RTW0	Q7rtw0 homo sapien
39	121	NRG3_HUMAN	144	2	Q9ESA2	Q9esa2 rattus norv
40	121	NRG3_HUMAN	144	2	Q9ESA2	Q9esa2 r. pro-neure
41	118.5	NRG3_HUMAN	141	2	Q6VQ42	Q6vq42 brachydanio
42	115	NRG3_HUMAN	137	1	O1444_HUMAN	O1444 homo sapien
43	113.5	NRG3_HUMAN	135	2	Q9Z015	Q9z015 rattus norv
44	112	NRG3_HUMAN	133	2	Q9JN4	Q9jn4 r. pro-neure
45	111	NRG3_HUMAN	132	1	BTC_MOUSE	Q05528 mus musculu

DR GO; GO:0030297; P:transmembrane receptor protein tyrosine kin. . . ; NAS.
 DR GO; GO:0001558; P:regulation of cell growth; NAS.
 DR InterPro; IPR007170; P:transmembrane receptor protein tyrosine kin. . . ; NAS.
 DR InterPro; IPR007442; EGF 2.
 DR InterPro; IPR006209; EGF-like.
 DR InterPro; IPR006210; IEGF.
 DR InterPro; IPR002154; Neuregulin.
 PFam; PF00008; EGF 1.
 PWI; PWI0008; Neuregulin; 1.
 SMART; SM00181; EGF; 1.
 PROSITE; PS00022; EGF_2; 1.
 PROSITE; PS01186; EGF_2; 1.
 PROSITE; PS50026; EGF_3; 1.
 KW BGF-like domain; Growth factor; Multigene family; Transmembrane.
 FT DOMAIN 1 720 Pro-neuregulin-3, membrane-bound form.
 FT CHAIN 1 359 Neuregulin-3.
 FT DOMAIN 1 360 Extracellular (Potential).
 FT TRANSMEM 361 381 Internal signal sequence (Potential).
 FT DOMAIN 382 720 Cytoplasmic (Potential).
 FT DOMAIN 105 285 Ser/Thr-rich.
 FT DOMAIN 286 329 EGF-like.
 FT DOMAIN 5 8 Poly-Ala.
 FT DOMAIN 13 21 Poly-Ala.
 FT DOMAIN 26 34 Poly-Ala.
 FT DOMAIN 127 135 Poly-Thr.
 FT DOMAIN 252 260 Poly-Ser.
 FT DOMAIN 262 265 Poly-Thr.
 FT DISULFID 290 304 By similarity.
 FT DISULFID 298 317 By similarity.
 FT DISULFID 319 328 By similarity.
 SQ SEQUENCE 720 AA; 77900 MW; Aad6F10DDB9SA693 CRC64;

Query Match 81.9%; Score 689.5%; DB 1; Length 720;
 Best Local Similarity 92.3%; Pred. No. 2, 46-59;
 Matches 131; Conservative 4; Indels 3; Gaps 2;

QY 1 SSSSSATTTPETSTSPKFTTMYSTERSEHFKPCRDKDYLAYCLNDGCFVITELTGSHK 60
 Db 256 SSSSSATTTPETSTSPKFTTMYSTERSEHFKPCRDKDYLAYCLNDGCFVITELTGSHK 315

QY 61 HCRCKEGYQCVRCDQFLPTDSILSDP-NHLGIFMMESSVEVYQRQLSISCIIFGIVYVG 119
 Db 3116 HCRCKEGYQCVRCDQFLPTCDTSILSDPTLHGLEFMESSVEVYQRQLSISCIIFGIVYVG 375

Qy 120 MFCAAFYFSGKRNTANSYSEE 141
 Db 3746 MFCAAFYFSGSKKKQ-AKQIQQ 395

RESULT 2
 NRG3 MOUSE STANDARD; PRT; 713 AA.
 ID NRG3_MOUSE
 AC O35181;
 DT 16-OCT-2001 (Rel. 40, Created)
 DT 16-OCT-2001 (Rel. 40, Last sequence update)
 DT 05-JUL-2004 (Rel. 44, Last annotation update)
 DE Pro-neuregulin-3 Precursor [Pro-NGR3] [Contains: Neuregulin-3 (NRG-3)].
 DE [1].
 GN Name=Nrg3;
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OC NCBI_TaxID=10090;
 RN [1].
 RP SEQUENCE FROM N.A.
 RC TISSUE=brain;
 RX MEDLINE=97420720; PubMed=92275162; DOI=10.1073/pnas.94.18.9562;
 RA Zhang D., Sliwkowski M.X., Mark M., Frantz G., Akita R., Sun Y., Hillian K.; Crowley C., Brush J., Godowski P.J.;
 RT "Neuregulin-3 (NRG3): a novel neural tissue-enriched protein that binds and activates ErbB4.";
 RL Proc. Natl. Acad. Sci. U.S.A. 94:9562-9567(1997).
 CC -!- FUNCTION: Direct ligand for the ERBB4 tyrosine kinase receptor.

CC Binding results in ligand-stimulated tyrosine phosphorylation and activation of the receptor. Does not bind to the EGF receptor, ERBB2 or ERBB3 receptors.
 CC -!- SUBCELLULAR LOCATION: Exists as an type I membrane protein and as a proteolytically released soluble growth factor form. The membrane-bound form does not seem to be active (By similarity).
 CC -!- TISSUE SPECIFICITY: Expressed in sympathetic, motor, and sensory neurons.
 CC -!- DEVELOPMENTAL STAGE: Detected as early as 11 dpc. At 13 dpc detected mainly in the nervous system. At 16 dpc, detected in the brain, spinal cord, trigeminal, vestibular-cochlear, and spinal ganglia. In adults, expressed in spinal cord, and numerous brain regions.
 CC -!- DOMAIN: The cytoplasmic domain may be involved in the regulation of trafficking and proteolytic processing. Regulation of the proteolytic processing involves initial intracellular domain dimerization (By similarity).
 CC -!- DOMAIN: ERBB receptor binding is elicited entirely by the EGF-like domain (By similarity).
 CC -!- PTM: Proteolytic cleavage close to the plasma membrane on the external face leads to the release of the soluble growth factor form (By similarity).
 CC -!- PTM: Extensive Glycosylation precedes the proteolytic cleavage (By similarity).
 CC -!- SIMILARITY: Belongs to the neuregulin family.
 CC -!- SIMILARITY: Contains 1 EGF-like domain.
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).
 CC EMBL; AF010130; AAB70914; 1; -.
 DR PTR; T44447; T44447.
 DR HSSP; P01132; 1JL9.
 DR MGD; MGJ:109765; Nrg3.
 DR GO; GO:005515; F:protein binding; IPI.
 DR DR GO:0007243; P:protein binding; IPI.
 DR InterPro; IPR000742; EGF_2.
 DR InterPro; IPR006209; EGF-like.
 DR InterPro; IPR02154; Neuregulin.
 DR Pfam; PF00008; EGF; 1.
 DR PROSITE; PS00022; EGF_1; 1.
 DR PROSITE; PS01186; EGF_2; 1.
 DR PROSITE; PS00026; EGF_3; 1.
 KW EGF-like domain; Growth factor; Multigene family; Transmembrane.
 FT CHAIN 1 713 Pro-neuregulin-3, membrane-bound form.
 FT CHAIN 1 361 Neuregulin-3.
 FT DOMAIN 1 362 Extracellular (Potential).
 FT TRANSMEM 363 383 Internal signal sequence (Potential).
 FT DOMAIN 384 713 Cytoplasmic (Potential).
 FT DOMAIN 105 287 Ser/Thr-rich.
 FT DOMAIN 288 331 EGF-like.
 FT DOMAIN 113 267 Poly-Ala.
 FT DOMAIN 26 34 Poly-Ala.
 FT DOMAIN 127 135 Poly-Thr.
 FT DOMAIN 250 253 Poly-Ala.
 FT DOMAIN 254 263 Poly-Ser.
 FT DOMAIN 264 270 Poly-Thr.
 FT DISULFID 292 306 By similarity.
 FT DISULFID 300 319 By similarity.
 FT DISULFID 321 330 By similarity.
 SQ SEQUENCE 713 AA; 77369 MW; 9F7D1D5E7F8C8DCP0 CRC64;
 Query Match 80.1%; Score 674.5%; DB 1; Length 713;
 Best Local Similarity 90.7%; Pred. No. 7.2e-58;
 Matches 127; Conservative 6; Mismatches 4; Indels 3; Gaps 2;

Db	259	SSTSTTTFETSTSPKFHTTTYSERSEHKPCRDKDLLAYCLNDGECFTETLGSKH	318	DT DT DE Neuregulin-1 type III beta1-a.
Qy	62	CRCKEGYQVRCQDFPLKTDLSIOP-NHIGIEPMEESEVYQRQLSISCTIFGTIVGM	120	OS OS Mus musculus (Mouse).
Db	319	CRCKEGYQVRCQDFPLKTDLSIOP-NHIGIEPMEESEVYQRQLSISCTIFGTIVGM	378	OC OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. NCBI_TaxID=10090;
Qy	121	FCAAFYFKSKRNITANSVE	140	RN [1]
Db	379	FCAAFYFKSKQ-AKQIQS	396	RN SEQUENCE FROM N.A. RC STRAIN=C57/B16J; RA Anton B.S., Ghashghaei H.T., Weber J.L., McCann C., Fischer T.M., RA Cheung I.D., Gassmann M., Messing A., Klein R., Schwab M.H., RA Lloyd K.C., Lai C.; RL Submitted (JUN-2004) to the EMBL/GenBank/DDBJ databases. - - SIMILARITY: CC GO: GO-0005102; F: receptor binding; IEA. DR EMBL: AAT68240_1; DR GO: GO-0009750; P: embryonic development; IEA. DR InterPro: IPR000742; EGF_2. DR InterPro: IPR006209; EGF-like. DR InterPro: IPR006210; IEGF. DR InterPro: IPR002154; Neuregulin. DR Pfam: PF00008; EGF_1. DR Pfam: PF02158; Neuregulin_1. DR Prints: PR01089; NEUREGULIN. DR SMART: SM00181; EGF_1. DR PROSITE: PS00022; EGF_1; UNKNOWN_1. DR PROSITE: PS50026; EGF_2; 1. KW EGF-like domain.
Q9ESB1	PRELIMINARY;	PRT;	700 AA.	SQ SEQUENCE 700 AA; 76504 MW; 37D7928FD7D49AC9 CRC64; CC - - SIMILARITY: to the EMBL/GenBank/DDBJ databases. DR Submitted (OCT-1999) to the EMBL/GenBank/DDBJ databases. DR ENBL: AF194438; AAC28427.1; -. DR HSSP: Q12780; IHRE_1. DR GO: GO:0009750; F: receptor binding; IEA. DR GO: GO:0009750; F: embryonic development; IEA. DR InterPro: IPR000742; EGF_2. DR InterPro: IPR006209; EGF_1-like. DR InterPro: IPR002114; HPR_SerP_S. DR InterPro: IPR006210; IEGF. DR InterPro: IPR002154; Neuregulin. DR Pfam: PF00008; EGF_1. DR Pfam: PF02158; Neuregulin_1. DR Prints: PR01089; NEUREGULIN. DR SMART: SM00181; EGF_1. DR PROSITE: PS00022; EGF_1; UNKNOWN_1. DR PROSITE: PS50026; EGF_3; 1. DR PROSITE: PS00589; PTS_HPR_SER; UNKNOWN_1. KW EGF-like domain.
RESULT 3				SQ SEQUENCE 700 AA; 76386 MW; 2F9111B17ECC49DA CRC64; Query Match Score 251.5; DB 2; Length 700; Best Local Similarity 34.0%; Pred. No. 4.5e-16; Matches 52; Conservative 34; Mismatches 58; Indels 9; Gaps 4; SQ 2 SSSATTTFETSTSPKFHTTTYSERSEHKPCRDKDLLAYCLNDGECFTETLGSKH
Qy	2	SSSATTTFETSTSPKFHTTTYSERSEHKPCRDKDLLAYCLNDGECFTETLGSKH	61	DT DT DE Carroll S.L., Stonecypher M.S., Anderson K.D., Pearson R.J. Jr., RA Frohner P.W.; RL Submitted (Oct-1999) to the EMBL/GenBank/DDBJ databases. - - SIMILARITY: CC GO: GO-0005102; F: receptor binding; IEA. DR EMBL: AF194933; AAG28433.1; -. DR HSSP: Q12780; 1HRE.
Db	206	SGTQFQTETTNLQTAQPKLST-STGTGSHLJKCAKEKTFCVNGECFNVKDLNSPSRY	264	DT DT DE Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus. NCBI_TaxID=10116;
Qy	62	-CRCKEGYQVRCQDFPLKTDLSIOP-NHIGIEPMEESEVYQRQLSISCTIFGTIVGM	120	RN [1] SEQUENCE FROM N.A. RC STRAIN=Sprague-Dawley; RA Carroll S.L., Anderson K.D., Frohnert P.W.; RA Cheung I.D., Gassmann M., Messing A., Klein R., Schwab M.H., RA Cheung I.D., Gassmann M., Messing A., Klein R., Schwab M.H., RA Lloyd K.C., Lai C.; RL Submitted (JUN-2004) to the EMBL/GenBank/DDBJ databases. - - SIMILARITY: CC GO: GO-0009750; P: embryonic development; IEA. DR EMBL: AAT68240_1; DR GO: GO-0009750; P: embryonic development; IEA. DR InterPro: IPR000742; EGF_2. DR InterPro: IPR006209; EGF-like. DR InterPro: IPR006210; IEGF. DR InterPro: IPR002154; Neuregulin. DR Pfam: PF00008; EGF_1. DR Pfam: PF02158; Neuregulin_1. DR Prints: PR01089; NEUREGULIN. DR SMART: SM00181; EGF_1. DR PROSITE: PS00022; EGF_1; UNKNOWN_1. DR PROSITE: PS50026; EGF_3; 1. DR PROSITE: PS00589; PTS_HPR_SER; UNKNOWN_1. KW EGF-like domain.
Q9ESA5	PRELIMINARY;	PRT;	782 AA.	SQ SEQUENCE 700 AA; 76386 MW; 2F9111B17ECC49DA CRC64; Query Match Score 251.5; DB 2; Length 700; Best Local Similarity 34.0%; Pred. No. 4.5e-16; Matches 52; Conservative 34; Mismatches 58; Indels 9; Gaps 4; SQ 2 SSSATTTFETSTSPKFHTTTYSERSEHKPCRDKDLLAYCLNDGECFTETLGSKH
Qy	2	SSSATTTFETSTSPKFHTTTYSERSEHKPCRDKDLLAYCLNDGECFTETLGSKH	61	DT DT DE Carroll S.L., Stonecypher M.S., Anderson K.D., Pearson R.J. Jr., RA Frohner P.W.; RL Submitted (Oct-1999) to the EMBL/GenBank/DDBJ databases. - - SIMILARITY: CC GO: GO-0005102; F: receptor binding; IEA. DR EMBL: AF194933; AAG28433.1; -. DR HSSP: Q12780; 1HRE.
Db	206	SGTQFQTETTNLQTAQPKLST-STGTGSHLJKCAKEKTFCVNGECFNVKDLNSPSRY	264	DT DT DE Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus. NCBI_TaxID=10116;
Qy	62	-CRCKEGYQVRCQDFPLKTDLSIOP-NHIGIEPMEESEVYQRQLSISCTIFGTIVGM	120	RN [1] SEQUENCE FROM N.A. RC STRAIN=Sprague-Dawley; TISSUE=Spinal cord/brain stem; RA Carroll S.L., Stonecypher M.S., Anderson K.D., Pearson R.J. Jr., RA Frohner P.W.; RL Submitted (Oct-1999) to the EMBL/GenBank/DDBJ databases. - - SIMILARITY: CC GO: GO-0005102; F: receptor binding; IEA. DR EMBL: AF194933; AAG28433.1; -. DR HSSP: Q12780; 1HRE.
Q6DR99	PRELIMINARY;	PRT;	700 AA.	SQ SEQUENCE 700 AA; 320 MCVVAZYCKTKK 350 CC - - SIMILARITY: Contains 1 EGF-like domain.
Db	259	MCVVAZYCKTKQ--RQKLHHLRQLRSERSNL	350	DT DT DE 25-OCT-2004 (TREMBrel. 28, Created) 25-OCT-2004 (TREMBrel. 28, Last sequence update)
RESULT 4				
Q6DR99	PRELIMINARY;	PRT;	700 AA.	
Db	259	MCVVAZYCKTKQ--RQKLHHLRQLRSERSNL	350	DT DT DE 25-OCT-2004 (TREMBrel. 28, Created) 25-OCT-2004 (TREMBrel. 28, Last sequence update)

DR	Pfam; PF00008; EGF; 1.
DR	Pfam; PF00047; Ig; 1.
DR	Pfam; PF02158; Neuregulin; 1.
DR	PRINTS; PRO1089; NEUREGULIN.
DR	PROSITE; PS00022; EGF; 1; UNKNOWN_1.
DR	PROSITE; PS50126; EGF; 3; 1.
DR	PROSITE; PS50835; Ig_LIKE; 1.
SQ	SEQUENCE 645 AA; 71126 MW; 04B7AFF528CDD628 CRC64;
Query Match	27.9%; Score 234.5; DB 2; Length 645;
Best Local Similarity	35.9%; Pred. No. 1.9e-14;
Matches	46; Conservative 31; Mismatches 40; Indels 11; Gaps 3;
Qy	5 SATTTPETSTSPEKHTTYSTERSEHKPCRDKDYLAYCLNDGEFCVIELTIGSHKH-CR 63
Db	157 SVSTEGANTSSS --- TSTSTGTSHLVKAECAKETKFCVNNGECMFVKDLSNPSRYLICK 211
Qy	64 CKEGYQGVRCDOFLPKTDTSILSPDNHIGIEPMESVEYQRQLSISCTIFGIVIVGMFCA 123
Db	212 CPNEFTGDRCONVV----MASPYKHLGIEPMEAELYQRKVLTITGICIAVVGIMCV 266
Query Match	27.9%; Score 234.5; DB 2; Length 645;
Best Local Similarity	35.9%; Pred. No. 1.9e-14;
Matches	46; Conservative 31; Mismatches 40; Indels 11; Gaps 3;
Qy	5 SATTTPETSTSPEKHTTYSTERSEHKPCRDKDYLAYCLNDGEFCVIELTIGSHKH-CR 63
Db	295 SVSTEGANTSSS --- TSTSTGTSHLVKAECAKTFVNNGECMFVKDLSNPSRYLICK 349
Qy	64 CKEGYQGVRCDOFLPKTDTSILSPDNHIGIEPMESVEYQRQLSISCTIFGIVIVGMFCA 123
Db	350 CPNEFTGDRCONVV----MASPYKHLGIEPMEAELYQRKVLTITGICIAVVGIMCV 404
Qy	124 APFKSKRNITANSVSEEFWKGLPQEPLN 153
Db	405 VAIYCKTKQQ-RQKLHDRLRSRSRSNSL 432
RESULT 7	
QRTW4	PRELIMINARY; PRT; 645 AA.
AC	ID Q6DR98 PRELIMINARY; PRT; 645 AA.
DT	01-MAR-2004 (TREMBLrel. 26, Created)
DT	01-MAR-2004 (TREMBLrel. 26, Last sequence update)
DE	Neuregulin 1 isoform HRG-beta1.
GN	Name=NRGL;
OS	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
NCBI_TaxID	10090; NCBI_TaxID=10090;
RN	[1]
RP	SEQUENCE FROM N.A.
RC	STRAIN=C57BL6J;
RA	Anton B.S., Ghashghaei H.T., Weber J.L., McCann C., Fischer T.M.,
RA	Cheung I.D., Gassmann M., Messing A., Klein R., Schwab M.H.,
RA	Lloyd K.C., Lai C./ Submitted (JUN-2004) to the EMBL/GenBank/DBJ databases.
CC	- - SIMILARITY: Contains 1 EGF-like domain.
DR	EMBL; AY64897; AAT68241; 1; -.
DR	GO; GO:0005102; F:receptor binding; IEA.
DR	GO; GO:0009790; P:embryonic development; IEA.
DR	InterPro; IPR000742; EGF_2;
DR	InterPro; IPR06209; EGF_1.
DR	InterPro; IPR06210; IEGF.
DR	InterPro; IPR003599; Ig.
DR	InterPro; IPR07110; Ig-like.
DR	InterPro; IPR003598; Ig_c2.
DR	InterPro; IPR020154; Neuregulin.
DR	Pfam; PF00008; Ig; 1.
DR	Pfam; PF00047; Ig; 1.
DR	Pfam; PF02158; Neuregulin; 1.
DR	PRINTS; PRO1089; NEUREGULIN.
DR	SMART; SM00181; EGF; 1.
DR	SMART; SM00409; Ig; 1.
DR	SMART; SM00408; IgC2; 1.
DR	PROSITE; PS00022; EGF; 1; UNKNOWN_1.
DR	PROSITE; PS50126; EGF; 3; 1.
DR	PROSITE; PS50835; Ig_LIKE; 1.
KW	EGF-like domain.
SQ	SEQUENCE 645 AA; 71381 MW; 7E575AEF73F55047 CRC64;
Query Match	27.7%; Score 233.5; DB 2; Length 645;
Best Local Similarity	35.9%; Pred. No. 2.4e-14;
Matches	46; Conservative 31; Mismatches 40; Indels 11; Gaps 3;

QY	5	SATTTTPESTSPKFHTTYSTERSEHKPCRDKDLAYCNDEGCFVIEETLTGSHKH-CR	63	- - SIMILARITY: Contains 1 immunoglobulin-like C2-type domain.
Db	157	SVSEGANTSSS----TSSTTGTSHLICLAEKETKFCVGGCMEVKDLSNPNSYVLCK	211	CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation at the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce or send an email to license@isb-sib.ch).
QY	64	CKEGYQGVRDQFLPKTDSSISDPHIGIPEMEESEVYQRYQUSLSCILFIVVIMCFA	123	CC
db	212	CPNEETGDRCONYV----MASFYKHLGIEBFMEAEBLYQRKLVTITGICITALVVGIMCV	266	CC
QY	124	AIFYPKSKR 1.31		CC
Db	267	VAYCSTKK 274		CC
RESULT 8				
NRG1_XENLA				
ID	NRG1_XENLA	STANDARD;	PRT;	677 AA.
AC	O93363; O9W6NO;			
DT	16-OCT-2001 (Rel. 40, Created)			
DT	16-OCT-2001 (Rel. 40, Last sequence update)			
DT	05-JUL-2004 (Rel. 44, Last annotation update)			
DE	Pro-neuregulin-1 precursor (Pro-NRG1) [Contains: Neuregulin-1].			
GN	Name=NRG1			
OS	Xenopus laevis (African clawed frog).			
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;			
OC	Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae;			
OC	Xenopoda; Xenopidae.			
OX	NCBI_TaxID=8355;			
RN				
RP	SEQUENCE FROM N.A. (ISOFORM ALPHAI), AND ALTERNATIVE SPLICING.			
RX	Medline:9835126; PubMed:968585; DOI=10.1016/S0169-322X(98)00085-0;			
RA	Yang J.F., Zhou H., Pun S., Ip N.Y., Peng H.B., Tsui K.W.K.;			
RT	"Cloning of cDNAs encoding xenopus neuregulin: expression in myotoma muscle during embryo development.",			
RT	Brain Res. Mol. Brain Res. 58:59-73 (1998). [12]			
RL				
RN	SEQUENCE FROM N.A. (ISOFORM CRD).			
RP	Medline:9316087; PubMed:10303827; DOI=10.1006/mcne.1999.0759;			
RX	Yang J.F., Zhou H., Choi R.C., Ip N.Y., Peng H.B., Tsui K.W.K.;			
RA	"A cysteine-rich form of Xenopus neuregulin induces the expression of acetylcholine receptors in cultured myotubes.",			
RT	Mol. Cell. Neurosci. 13:415-429 (1999).			
RT	Induces expression of acetylcholine receptor in synaptic nuclei.			
CC	- - SUBCELLULAR LOCATION: Exists as a type I membrane protein and as a proteolytically released soluble growth factor form. The membrane bound form does not seem to be active (By similarity).			
CC	- - ALTERNATIVE PRODUCTS: Named isoforms=2; Event=Alternative splicing; Named isoforms seem to exist. Isoforms have alpha- or beta-type EGF-like domains;			
CC	- - Name=Alpha;			
CC	- - IsoId=093383-1; Sequence=Displayed;			
CC	Name=CRD; Synonyms=CRD-NRG1, cysteine-rich domain;			
CC	IsoId=093383-2; Sequence=VSP 003449, VSP 003450;			
CC	- - TISSUE SPECIFICITY: Isoform alpha1 is expressed in brain and muscle. Isoform CRD is expressed in brain and spinal cord, but at very low level in muscle.			
CC	- - DEVELOPMENTAL STAGE: Strong expression in developing brain and spinal cord of the embryo. Also expressed in the myotomal muscle.			
CC	- - DOMAIN: The cytoplasmic domain may be involved in the regulation of trafficking and proteolytic processing. Regulation of the proteolytic processing involves initial intracellular domain dimerization (By similarity).			
CC	- - DOMAIN: ERBB receptor binding is elicited entirely by the EGF-like domain.			
CC	- - PTM: Proteolytic cleavage close to the plasma membrane on the external face leads to the release of the soluble growth factor.			
CC	- - PTM: Extensive glycosylation precedes the proteolytic cleavage (By similarity).			
CC	- - SIMILARITY: Belongs to the neuregulin family.			
CC	- - SIMILARITY: Contains 1 EGF-like domain.			
CC	- - SIMILARITY: Contains 1 isoform CRD.			
QY	6	ARTTPPETSTSPKFHTTYSTERSEHKPCRDKDLAYCNDEGCFVIEETLTGSHKH-CRC	64	CC
SEQUENCE	677 AA:	75794 MW:	4927988F5BAA396F CRC64;	CC
QY	7	Query Match Score 27.7%; Best Local Similarity 34.4%; Matches 53;	Length 677; Pred. No. 2.6e-14; Conservative 29; Mismatches 47; Indels 25; Gaps 6	CC
Db	175	ATTKRQGDITAGP-----GHLIKCSDEKTYCNGECVNLGNTISSNPMCK	222	CC
QY	8	KEGYQGVRCQDFLPKTD--SILSDPPNHGIEFMSBEVYORVLSISCLFGIVTVGMFC	122	CC
Db	223	KPQFTGARCTEDPLRVRLVRSKEHIGIEFMS	> BNEFTGD	CC
QY	9	Name=CRD; Synonyms=CRD-NRG1, cysteine-rich domain;	RCONYVMASFYK (In 1 isoform CRD).	CC
SEQUENCE	677 AA:	75794 MW:	4927988F5BAA396F CRC64;	CC
QY	10	6 ARTTPETSTSPKFHTTYSTERSEHKPCRDKDLAYCNDEGCFVIEETLTGSHKH-CRC	64	CC
Db	175	ATTKRQGDITAGP-----GHLIKCSDEKTYCNGECVNLGNTISSNPMCK	222	CC
QY	11	KEGYQGVRCQDFLPKTD--SILSDPPNHGIEFMSBEVYORVLSISCLFGIVTVGMFC	122	CC
Db	223	KPQFTGARCTEDPLRVRLVRSKEHIGIEFMS	> BNEFTGD	CC
QY	12	AA-FYFKSKR-----NITANSVSPERWLGPLSQE	150	CC
Db	279	VVDAYCTKTKORKKLNDLRLQSRLRNKNKD	312	CC

Page 6

RESULT 9

NRG1_1 CHICK STANDARD; PRT; 602 AA.

ID NRG1_1 CHICK; Q05159; O73750; O73751; O73752; AC 16-OCT-2001 (Rel. 40, Created)

DT 16-OCT-2001 (Rel. 40, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

Pro-neuregulin-1 precursor (Pro-NRG1) [Contains: Neuregulin-1 (Acetylcholine receptor inducing activity) (ARIA)].

Name=NRG1; Synonyms=ARIA;

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.

NCBI_TaxID=9031;

OS Gallus gallus (Chicken).

OC Bivalvia; Mollusca; Chordata; Craniata; Vertebrata; Euteleostomi; OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; OC Gallus.

OX NCBI_TaxID=9031;

RN RP SEQUENCE FROM N.A. (ISOFORM 1), AND PARTIAL SEQUENCE.

RC STRAIN=White leghorn; TISSUE=Brain;

RC TISSUE=Brain, and Spinal cord;

RX MEDLINE=93301602; PubMed=8453670; DOI=10.1016/S0896-6273(00)80454-7;

RX MEDLINE=98150951; PubMed=9491987; DOI=10.1016/0092-8674(93)90407-H;

RA Falls D.L.; Rosen K.M.; Corfas G.; Lane W.S.; Fischbach G.D.;

RA Yang X.; Kuo Y.; Devay P.; Yu C.; Role L.;

RT "ARIA, a protein that stimulates acetylcholine receptor synthesis, is a member of the neu ligand family.";

RT Cell 72: 801-815(1993).

[2]

RN RP SEQUENCE FROM N.A. (ISOFORMS 2, 3 AND 4).

RC TISSUE=Brain, and Spinal cord.

RX MEDLINE=98150951; PubMed=9491987; DOI=10.1016/S0896-6273(00)80454-7;

RA Yang X.; Kuo Y.; Devay P.; Yu C.; Role L.;

RT "A cysteine-rich isoform of neuregulin controls the level of expression of neuronal nicotinic receptor channels during synaptogenesis.,"

RT Neuron 20: 255-270(1998).

-1 - FUNCTION: Direct ligand for the ERBB tyrosine kinase receptors. The multiple isoforms perform diverse functions: cysteine-rich domain containing isoforms (isoforms 2-4) probably regulate the expression of nicotinic acetylcholine receptors at developing interneuronal synapses. The Ig-NRG isoform is required for the initial induction and/or maintenance of the mature levels of acetylcholine receptors at neuromuscular synapses.

-1 - SUBCELLULAR LOCATION: Exists as a type I membrane protein and as a proteolytically released soluble growth factor form. The membrane bound form does not seem to be active (By similarity).

-1 - ALTERNATIVE PRODUCTS:

Event=Alternative splicing; Named isoforms=4;

Comment=Additional isoforms seem to exist;

ISOID=Q05199-1; Sequence=>Displayed;

Name=1; Synonyms=ARIA; IG-NRG;

Name=2; Synonyms=CRD-NRG-BETA1A;

ISOID=Q05199-2; Sequence=>VSP_003445;

Name=3; Synonyms=CRD-NRG-BETA2A;

ISOID=Q05199-3; Sequence=>VSP_003445; VSP_003446;

Note=The EGFR-like domain is replaced by a cysteine-rich domain (CRD);

Name=4; Synonyms=CRD-NRG-BETA2B;

ISOID=Q05199-4; Sequence=>VSP_003445; VSP_003446; VSP_003448;

Note=The EGFR-like domain is replaced by a cysteine-rich domain (CRD);

-1 - DEVELOPMENTAL STAGE: Isoforms 2-4 are detected at embryonic day 4 (ED4) in both visceral and somatic motor neurons of spinal cord and is highest at ED6. Isoform 1 is not expressed until ED 6 in spinal cord. At ED 11 both isoforms display comparable levels.

-1 - DOMAIN: The cytoplasmic domain may be involved in the regulation of trafficking and proteolytic processing. Regulation of the proteolytic processing involves initial intracellular domain dimerization (By similarity).

-1 - DOMAIN: ERBB receptor binding is elicited entirely by the EGF-link domain.

-1 - PTM: Proteolytic cleavage close to the plasma membrane on the external face leads to the release of the soluble growth factor.

Query Match 26.7%; Score 224.5; DB 1; Length 602;
 Best Local Similarity 35.6%; Pred. No. 1.7e-13;
 Matches 47; Conservative 27; Mismatches 43; Indels 15; Gaps 3;
 SQ Q9ESB0 PRELIMINARY; PRT; 695 AA.

Qy 1 SSSSSATTTPETSPKFTTYYTSTERSEHFKPCRDKDYLAYCLNDGECPVIETLTGSHK 60
 ID Q9ESB0 PRELIMINARY; PRT; 695 AA.
 AC Q9ESB0 ;
 DR DT 01-MAR-2001 (TREMBlre1. 16, Created)
 DR DT 01-MAR-2001 (TREMBlre1. 16, Last sequence update)
 DR DT 01-MAR-2004 (TREMBlre1. 26, Last annotation update)

Db 116 TKAISVITIDNAT-----STTGTSHLTRCDIKRKFACVNGGECMVKDLPNPR 166
 Name=Nrg1;

Qy 61 H-CRCKEGYQGVRCDOFLPKTDLSDPHNLGIEFMESEEVYQRQLSISCIIFGIVIG 119
 DR SMDF neuregulin alpha 2a.

Db 167 YLCRCPNEPFGDRCONYV----MASFYXHLGIESMEAELYQRVLVTITGICITALVVG 221
 OS Rattus norvegicus (Rat).

Qy 120 MFCAAFYFGSKR 131
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus;
 OC NCBI_TaxID=10116;

Db 222 IMCVVAYCCTKK 233
 RN [1]

RESULT 10
 RP SEQUENCE FROM N.A.
 RC STRAIN=BDIX;
 RA Carroll S.L., Anderson K.D., Frohnert P.W.;
 RL Submitted (OCT-1999) to the EMBL/GenBank/DBJ databases.
 CC -I- SIMILARITY: Contains 1 EGF-like domain.
 DR EMBL; AF194439; ARG28428.1; -.
 DT 01-MAR-2001 (TREMBlre1. 16, Created)
 DT 01-MAR-2001 (TREMBlre1. 16, Last sequence update)
 DT 01-MAR-2004 (TREMBlre1. 26, Last annotation update)

DE Name=Nrg1;

GN Rattus norvegicus (Rat).

OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus;
 OC NCBI_TaxID=10116;

RN [1]

SEQUENCE FROM N.A.
 RC STRAIN=BDIX;
 RA Carroll S.L., Anderson K.D., Frohnert P.W.;
 RL Submitted (OCT-1999) to the EMBL/GenBank/DBJ databases.
 CC -I- SIMILARITY: Contains 1 EGF-like domain.
 DR EMBL; AF194439; ARG28428.1; -.
 DR HSSP; Q12780; 1HRE.
 DR GO; GO:0005102; P:receptor binding; IEA.
 DR InterPro; IPR00742; EGF 2.
 DR InterPro; IPR006209; EGF-like.
 DR InterPro; IPR02114; HPr_Ser_P.
 DR InterPro; IPR006210; IEGF.
 DR InterPro; IPR002154; Neuregulin.
 DR Pfam; PF00008; EGF; 1.
 DR PRINTS; PRO01089; NEUREGULIN; 1.
 DR SMART; SM00181; EGF; 1.
 DR PROSITE; PS00022; EGF 1; 1.
 DR PROSITE; PS01186; EGF 2; 1.
 DR PROSITE; PS50026; EGF 3; 1.
 DR PROSITE; PS00089; PTS_HPR_SER; UNKNOWN_1.
 KW EGF like domain.
 SQ SEQUENCE 695 AA; 7546 MW; 5277F2B2A2FB6878 CRC64;

Query Match 26.0%; Score 219; DB 2; Length 695;
 Best Local Similarity 29.9%; Pred. No. 7.e-13;
 Matches 46; Conservative 37; Mismatches 55; Indels 16; Gaps 5;

Qy 2 SSSSSATTTPETSPKFTTYYTSTERSEHFKPCRDKDYLAYCLNDGECPVIETLTGSHK 61
 ID NRG2_MOUSE STANDARD; PRT; 756 AA.
 AC P5674;
 DR DT 16-OCT-2001 (Rel. 40, Created)
 DR DT 05-JUL-2004 (Rel. 44, Last sequence update)

Db 20 SGTPQQTETNLQTAPKLSTST-STTGTSHLIKCAEKETFCVNGGECPTVKDLSNSPSRY 78
 Name=Nrg2;

Qy 62 -CRCKEGYQGVRCDOFLPKTDLSDPHNLGIEFME-SEEFYQRQLSISCIIFGIVIG 119
 DR Pro-neuregulin-2 precursor (Pro-NRG2) (Contains: Neuregulin-2 (NRG-2).
 DR (Divergent of neuregulin 1) (DON-1).
 DR OS Mus musculus (Mouse).

Db 79 LCKCOPGFITGARCTENV-----MKVQTEKAELYQRVLVTITGICITALVVG 127
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus;
 OC NCBI_TaxID=10090;

RN [1]

DR	InterPro; IPR002154; Neuregulin.	Query Match 23.9%; Score 201; DB 2; Length 394;
PFam	PF000008; EGF; 1.	Best Local Similarity 31.0%; Pred. No. 2.2e-11;
PFam	PF00047; Ig; 1.	Matches 40; Conservative 34; Mismatches 37; Indels 18; Gaps 4;
PFam	PF02158; Neuregulin; 1.	
PRINTS	PRO1089; NEUREGULIN.	
SMART	SM00188; EGF; 1.	
SMART	SM00408; IgG2; 1.	
DR	SMART; SM00408; IgG2; 1.	
DR	PROSITE; PS000022; EGF-1; 1.	
DR	PROSITE; PS01186; EGF-2; 1.	
DR	PROSITE; PS50026; EGF-3; 1.	
DR	PROSITE; PS50835; Ig_LIKE; 1.	
KW	EGF-like domain.	
SEQUENCE	461 AA; 50890 MW; 935C9560F7148336 CRC64;	
Query Match 24.1%; Score 203; DB 2; Length 461;		
Best Local Similarity 28.5%; Pred. No. 1.7e-11;		
Matches 43; Conservative 39; Mismatches 49; Indels 20; Gaps 5;		
Qy	5 SATTTPETSTSPKFTTYSTERSBHKPCKRDKDLYCLNDGEFCVIEITLTGSKH-CR 63	RESULT 15
db	157 SVSTEGANTSSS----TSTTGTSHLYCAEKTFCVNGGEFCMVLDNSPRLCK 211	Q7RTW1 ID Q7RTW1; PRELIMINARY; PRT; 462 AA.
Qy	64 CKEGYQGVRCQDFPLKTDTSLSDPNHLGIEFME-SEEVYQROVLISICSTIFGIVYGMFC 122	AC Q7RTW1; DT 01-MAR-2004 (TREMBREL 26, Created)
db	212 CQPFTGARTENVP-----MKVYQERAEELYQKRVLTTIGCITALYVGIMC 260	DT 01-MAR-2004 (TREMBREL 26, Last sequence update)
Qy	123 AAFYFKSKR131	DN Name=NRGL;
db	261 VVAYCKTKK 260	OS Homo sapiens (Human).
		OC Eukaryote; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
		NCBI_TaxID=9606; NCBI_TaxID=9606/;
		OX RN [1]_
		RP SEQUENCE FROM N.A.
		RX PubMed-12145742;
		RA Stefansson H., Sigurdsson E., Steinhorsdottir V., Bjornsdottir S., Sigmundsson H., Sigurdsson H., Gunnarsdottir J., Gunnarsdottir S., Ivarsson O., Chou T.T., Bjornsdottir B., Jonsson H., Guðnadróttir V.G., Guðnadróttir B., Bjornson A., Ingvarsson B., Ingason A., Sigfusson S., Hardardottir H., Harvey R.P., Brunner D., Mutei V., Gonzalez A., Lemke G., Sainz J., Johannesson G., Andreasson T., Guðbjartsson D., Manolescu A., Frigge M.L., Kong A., Gulcher J.R., Petursson H., Stefansson K.; RT "Neuregulin 1 and Susceptibility to Schizophrenia.";
		RL Am. J. Hum. Genet. 71:0 (2002).
		CC - MISCELLANEOUS: The sequence shown here is derived from an EMBL/GenBank/DBU third party annotation (TPA) entry.
		DR HSSP: O12780; IHRE.
		DR GO:0005102; Preceptor binding; IBA.
		DR GO:0009790; Embryonic development; IBA.
		DR InterPro: IPRO007472; EGF 2.
		DR InterPro: IPRO06209; EGF-like.
		DR InterPro: IPRO07110; Ig-Like.
		DR InterPro: IPRO02154; Neuropilin.
		DR Pfam; PF00008; EGF; 1.
		DR Pfam; PF00047; Ig; 1.
		DR Pfam; PF02158; Neuropilin; 1.
		DR PRINTS; PRO1089; NEUREGULIN.
		DR PROSITE; PS00022; EGF 1.
		DR PROSITE; PS01186; EGF-1.
		DR PROSITE; PS50026; EGF-2.
		DR PROSITE; PS50835; Ig_LIKE; 1.
		SEQUENCE 462 AA; 50848 MW; 8CAAADB30056A80D CRC64;
Query Match 23.9%; Score 201; DB 2; Length 462;		
Best Local Similarity 31.0%; Pred. No. 2.7e-11;		
Matches 40; Conservative 34; Mismatches 37; Indels 18; Gaps 4;		
Qy	5 SATTTPETSTSPKFTTYSTERSBHKPCKRDKDLYCLNDGEFCVIEITLTGSKH-CR 63	
db	157 SVSTEGANTSSS----TSTTGTSHLYCAEKTFCVNGGEFCMVLDNSPRLCK 211	
Qy	64 CKEGYQGVRCQDFPLKTDTSLSDPNHLGIEFME-SEEVYQROVLISICSTIFGIVYGMFC 122	
SEQUENCE 394 AA; 42980 MW; C183EE80927443F9 CRC64;		

Db 212 CQPGFTGARCTENP-----MKVONQEKAELYQRVLITIGCIALYVGIMC 260

Qy 123 AAFYFKSKR 131
Db 261 VVAYCKTKK 269

Search completed: July 13, 2005, 20:27:54
Job time : 176 secs

RESULT 2
 Db 1 SSSSATTPETSTSPKHTTYSTERSHFKPCKDQAYCLNDGCFVIETLTGSHK 60
 Qy 61 HCRCKEGYQGRCDQFLPKTDLSRSPHNLGIEEMSEBEVYORVLSISCIIFGIVGM 120
 Db 61 HCRCKEGYQGRCDQFLPKTDLSRSPHNLGIEEMSEBEVYORVLSISCIIFGIVGM 120
 Qy 121 FCAFPFKSKNITANVSEERWKGLPSQEPNLQDK 157
 Db 121 FCAFPFKSKNITANVSEERWKGLPSQEPNLQDK 157

RESULT 2
 Sequence 23, Application US/08899437
 Patent No. 6121415
 GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
 TITLE OF INVENTION: Brb Receptor-Specific Neuregulin Related
 TITLE OF INVENTION: Ligands and Uses Therefor
 NUMBER OF SEQUENCES: 23
 CURRENT APPLICATION DATA:
 NUMBER OF SEQUENCES: 23
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: Genentech, Inc.
 STREET: 1 DNA Way
 CITY: South San Francisco
 STATE: California
 COUNTRY: USA
 ZIP: 94080
 COMPUTER READABLE FORM:
 MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: WinPat-in (Genentech)
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US 09/126,121
 FILING DATE: 30-Jul-1998
 CLASSIFICATION:
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: 16,487
 REFERENCE/DOCKET NUMBER: P1084R1D1
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 INFORMATION FOR SEQ ID NO: 27
 SEQUENCE CHARACTERISTICS:
 LENGTH: 696 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear
 FEATURE:
 NAME/KEY: Human NRG3B2
 LOCATION: 1-696
 IDENTIFICATION METHOD:
 OTHER INFORMATION:
 US-09-126-121-23

INFORMATION FOR SEQ ID NO: 23:
 COMPUTER READABLE FORM:
 MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: WinPat-in (Genentech)
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US 08/899,437
 FILING DATE: 24-JUL-1997
 CLASSIFICATION: 435
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: 36,487
 REFERENCE/DOCKET NUMBER: P1084R1
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 INFORMATION FOR SEQ ID NO: 23:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 696 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear
 FEATURE:
 NAME/KEY: Human NRG3B2
 LOCATION: 1-696
 IDENTIFICATION METHOD:
 OTHER INFORMATION:
 US-08-899-437-23

RESULT 4
 Qy 1 SSSSATTPETSTSPKHTTYSTERSHFKPCKDQAYCLNDGCFVIETLTGSHK 60
 Db 256 SSSSATTPETSTSPKHTTYSTERSHFKPCKDQAYCLNDGCFVIETLTGSHK 315
 Qy 61 HCRCKEGYQGRCDQFLPKTDLSRSPHNLGIEEMSEBEVYORVLSISCIIFGIVGM 119
 Db 316 HCRCKEGYQGRCDQFLPKTDLSRSPHNLGIEEMSEBEVYORVLSISCIIFGIVGM 375
 Qy 120 MCAFPYFKSKNITANVSEE 141
 Db 376 MCAFPYFKSKNITANVSEE 395

RESULT 3
 US-09-126-121-23
 Sequence 43, Application US/09126121
 Patent No. 6121415
 GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
 TITLE OF INVENTION: Ligands and Uses Therefor
 NUMBER OF SEQUENCES: 23
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US 09/126,121
 FILING DATE: 30-Jul-1998
 CLASSIFICATION:
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: 16,487
 REFERENCE/DOCKET NUMBER: P1084R1D1
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 INFORMATION FOR SEQ ID NO: 27
 SEQUENCE CHARACTERISTICS:
 LENGTH: 696 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear
 FEATURE:
 NAME/KEY: Human NRG3B2
 LOCATION: 1-696
 IDENTIFICATION METHOD:
 OTHER INFORMATION:
 US-09-126-121-23

Query Match 81.9%; Score 689.5; DB 3; Length 696;
 Best Local Similarity 92.3%; Pred. No. 8.3e-68; Indels 3; Gaps 2;
 Matches 131; Conservative 4; Mismatches 1; : : ;
 Db 376 MCAFPYFKSKNITANVSEE 395

RESULT 4
 US-08-899-437-6
 Sequence 6, Application US/08899437
 Patent No. 6121415
 GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
 TITLE OF INVENTION: Brb Receptor-Specific Neuregulin Related
 NUMBER OF SEQUENCES: 23
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US 08/899,437-6
 FILING DATE: 24-JUL-1997
 CLASSIFICATION:
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: 36,487
 REFERENCE/DOCKET NUMBER: P1084R1
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 INFORMATION FOR SEQ ID NO: 27
 SEQUENCE CHARACTERISTICS:
 LENGTH: 696 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear
 FEATURE:
 NAME/KEY: Human NRG3B2
 LOCATION: 1-696
 IDENTIFICATION METHOD:
 OTHER INFORMATION:
 US-08-899-437-6

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OM protein - protein search, using sw model

Run on: July 13, 2005, 20:19:22 ; Search time 42 Seconds
 (without alignments)
 279.045 Million cell updates/sec

Title: US-10-609-370-2

Perfect score: 842

Sequence: 1 SSSSATTTTPESTS PKFH.....VSEERWKG LPSQEPN LQQDK 157

Scoring table: Blosum62

Blosum62 Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0*

Maximum Match 100*

Listing first 45 summaries

Database : Issued_Patents_AA.*
 1: /cgn2_6/pbodata/1/iaa/5A_COMB.pep:*

2: /cgn2_6/pbodata/1/iaa/5B_COMB.pep:*

3: /cgn2_6/pbodata/1/iaa/6A_COMB.pep:*

4: /cgn2_6/pbodata/1/iaa/6B_COMB.pep:*

5: /cgn2_6/pbodata/1/iaa/PECTUS_COMB.pep:*

6: /cgn2_6/pbodata/1/iaa/backfles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query	Match	Length	DB ID	Description
1	842	100.0	-157	4	US-09-097-681-2	Sequence 2, Appli
2	689.5	61.9	696	3	US-09-097-681-2	Sequence 23, Appli
3	689.5	61.9	696	3	US-09-097-681-2	Sequence 23, Appli
4	689.5	81.9	720	3	US-09-097-681-2	Sequence 6, Appli
5	689.5	81.9	720	3	US-09-097-681-2	Sequence 6, Appli
6	686.5	61.5	720	4	US-09-097-681-2	Sequence 22, Appli
7	674.5	80.1	713	3	US-09-097-681-2	Sequence 2, Appli
8	674.5	80.1	713	3	US-09-097-681-2	Sequence 2, Appli
9	552.5	65.6	360	3	US-09-097-681-2	Sequence 7, Appli
10	552.5	65.6	360	3	US-09-097-681-2	Sequence 7, Appli
11	539.5	64.1	362	3	US-09-097-681-2	Sequence 3, Appli
12	539.5	64.1	362	3	US-09-097-681-2	Sequence 3, Appli
13	282	33.5	48	4	US-09-097-681-2	Sequence 6, Appli
14	277	32.9	47	3	US-09-097-681-2	Sequence 4, Appli
15	277	32.9	47	3	US-09-097-681-2	Sequence 8, Appli
16	277	32.9	47	3	US-09-097-681-2	Sequence 4, Appli
17	277	32.9	47	3	US-09-097-681-2	Sequence 8, Appli
18	251.5	29.9	700	4	US-09-097-681-2	Sequence 2, Appli
19	246.5	29.3	1070	3	US-09-097-681-2	Sequence 2, Appli
20	243	28.9	364	4	US-09-097-681-2	Sequence 245, App
21	243	28.9	364	4	US-09-097-681-2	Sequence 171, App
22	243	28.9	398	4	US-09-097-681-2	Sequence 287, App
23	243	28.9	398	4	US-09-097-681-2	Sequence 213, App
24	243	28.9	581	4	US-09-097-681-2	Sequence 246, App
25	243	28.9	581	4	US-09-097-681-2	Sequence 172, App
26	243	28.9	613	3	US-09-097-681-2	Sequence 230, App
27	243	28.9	613	4	US-09-097-681-2	Sequence 329, App

ALIGNMENTS

RESULT 1
 US-09-097-681-2
 ; Sequence 2, Application US/09097681
 ; Patent No. 6727077
 ; GENERAL INFORMATION:
 / APPLICANT: Young, Paul
 / APPLICANT: King, C. Richter
 / APPLICANT: Hjazi, Mai
 / APPLICANT: Ruben, Steve
 / TITLE OF INVENTION: Hesegulin-Like Factor
 / NUMBER OF SEQUENCES: 22
 / CORRESPONDENCE ADDRESS:
 / ADDRESSEE: Human Genome Sciences, Inc.
 / STREET: 9410 Key West Avenue
 / CITY: Rockville
 / STATE: MD
 / COUNTRY: US
 / ZIP: 20850
 / COMPUTER READABLE FORM:
 / MEDIUM TYPE: Floppy disk
 / COMPUTER: IBM PC compatible
 / OPERATING SYSTEM: PC DOS/MS-DOS
 / SOFTWARE: Patentin Release #1.0, Version #1.30
 / CURRENT APPLICATION DATA:
 / APPLICATION NUMBER: US/09/097, 681
 / FILING DATE:
 / CLASSIFICATION:
 / PRIORITY APPLICATION DATA:
 / APPLICATION NUMBER: US 60/049, 942
 / FILING DATE: 17-JUN-1997
 / ATTORNEY/AGENT INFORMATION:
 / NAME: Hoover, Kenley K.
 / REGISTRATION NUMBER: 40, 302
 / REFERENCE/DOCKET NUMBER: PP383.PCT
 / TELECOMMUNICATION INFORMATION:
 / TELEPHONE: 301-3098504
 / TELEFAX: 301-309-8439
 / INFORMATION FOR SEQ ID NO: 2:
 / SEQUENCE CHARACTERISTICS:
 / LENGTH: 157 amino acids
 / TYPE: amino acid
 / TOPOLOGY: linear
 / MOLECULE TYPE: protein
 US-09-097-681-2

Qy 1 SSSSATTTPETSSSPKHTTTYSSTERSEBFKPDRKDLYNDGECFVIETTGSHK 60

RESULT 2
US 08-899-437-23
Sequence 23, Application US/0899437
Patent No. 6,124,115
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related
TITLE OF INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/126,121
FILING DATE: 30-Jul-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/952-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: Human NRG3B2
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/952-2066
TELEFAX: 650/952-9881
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: Human NRG3B2
LOCATION: 1-696
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-08-899-437-23

Query Match 81.9%; Score 689.5; DB 3; Length 696;
Best Local Similarity 92.3%; Pred. No. 8.3e-68;
Matches 131; Conservative 4; Mismatches 3; Gaps 2;
Db 376 MFCAAFYFKSKRKQ-AKQIQQ 395

RESULT 4
US-08-899-437-6
Sequence 6, Application US/0899437
Patent No. 6,124,115
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related
TITLE OF INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way

RESULT 3
US-09-126-121-23
Sequence 23, Application US/09126121
Patent No. 6,125,051
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related
TITLE OF INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/126,121
FILING DATE: 30-Jul-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/952-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: Human NRG3B2
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/952-2066
TELEFAX: 650/952-9881
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: Human NRG3B2
LOCATION: 1-696
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-09-126-121-23

Query Match 81.9%; Score 689.5; DB 3; Length 696;
Best Local Similarity 92.3%; Pred. No. 8.3e-68;
Matches 131; Conservative 4; Mismatches 3; Gaps 2;
Db 376 MFCAAFYFKSKRKQ-AKQIQQ 395

RESULT 4
US-08-899-437-6
Sequence 6, Application US/0899437
Patent No. 6,124,115
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related
TITLE OF INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way

CITY: South San Francisco
 STATE: California
 COUNTRY: USA
 ZIP: 94080

COMPUTER READABLE FORM:
 MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: WinPat-in (Genentech)

CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/08/899,437
 FILING DATE: 24-Jul-1997
 CLASSIFICATION: 435
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Dairdre L.
 REGISTRATION NUMBER: 36,487
 REFERENCE/DOCKET NUMBER: P1084R1D1
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 CLASSIFICATION: 435
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Dairdre L.
 REGISTRATION NUMBER: 36,487
 REFERENCE/DOCKET NUMBER: P1084R1
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 INFORMATION FOR SEQ ID NO: 6:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 720 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear
 FEATURE:
 NAME/KEY: HNRG3B1 amino acid sequence
 LOCATION: 1-720
 IDENTIFICATION METHOD:
 OTHER INFORMATION:
 US-08-899-437-6

Query Match 81.9%; Score 689.5%; DB 3; Length 720;
 Best Local Similarity 92.3%; Pred. No. 8.7e-68;
 Matches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTPETSTSPKFHTTTYSERSEHFKPCKDILAYCLNDGECVIELTGSHK 60
 Db 256 SSSSSATTTPETSTSPKFHTTTYSERSEHFKPCKDILAYCLNDGECVIELTGSHK 315

RESULT 6
 US-09-126-121-6

Patent No. 6252051

GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
 TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related
 TITLE OF INVENTION: Ligands and Uses Therefor
 NUMBER OF SEQUENCES: 23
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: Genentech, Inc.
 STREET: 1 DNA Way
 CITY: South San Francisco
 STATE: California
 COUNTRY: USA
 ZIP: 94080

COMPUTER READABLE FORM:
 MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: WinPat-in (Genentech)

CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/09/126,121
 FILING DATE: 30-Jul-1998

CLASSIFICATION:
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Dairdre L.
 REGISTRATION NUMBER: 36,487
 REFERENCE/DOCKET NUMBER: P1084R1D1
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 INFORMATION FOR SEQ ID NO: 6:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 720 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear
 FEATURE:
 NAME/KEY: HNRG3B1 amino acid sequence
 LOCATION: 1-720
 IDENTIFICATION METHOD:
 OTHER INFORMATION:
 US-09-126-121-6

Query Match 81.9%; Score 689.5%; DB 3; Length 720;
 Best Local Similarity 92.3%; Pred. No. 8.7e-68;
 Matches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTPETSTSPKFHTTTYSERSEHFKPCKDILAYCLNDGECVIELTGSHK 60
 Db 256 SSSSSATTTPETSTSPKFHTTTYSERSEHFKPCKDILAYCLNDGECVIELTGSHK 315

RESULT 6
 US-09-097-681-22

Patent No. 6727077

GENERAL INFORMATION:
 APPLICANT: Young, Paul
 APPLICANT: King, C. Richter
 APPLICANT: Hajazi, Mai
 APPLICANT: Ruben, Steve
 TITLE OF INVENTION: Herequin-Like Factor
 NUMBER OF SEQUENCES: 22
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: Human Genome Sciences, Inc.
 STREET: 9410 Key West Avenue
 CITY: Rockville
 STATE: MD
 COUNTRY: US
 ZEP: 20850

COMPUTER READABLE FORM:
 COMPUTER: IBM PC compatible
 MEDIUM TYPE: Floppy disk
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: PatentIn Release #1.0, Version #1.30
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/09/097,681
 FILING DATE:

CLASSIFICATION:
 PRIOR APPLICATION DATA:
 APPLICATION NUMBER: US 60/049,942
 FILING DATE: 17-JUN-1997
 ATTORNEY/AGENT INFORMATION:
 NAME: Hoover, Kenley K.
 REGISTRATION NUMBER: 40,302
 REFERENCE/DOCKET NUMBER: PF383PCT
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 301-3098504

TELEFAX: 301-309-8439
 INFORMATION FOR SEQ ID NO: 22:

SEQUENCE CHARACTERISTICS:
 LENGTH: 720 amino acids
 TYPE: amino acid
 STRANDEDNESS: single
 TOPOLOGY: linear
 MOLECULE TYPE: protein
 US-09-097-681-22

Query Match Score 81.5%; Pred. No. 1; e-67;
 Best Local Similarity 91.5%; Matches 130; Conservative 1; Mismatches 5; Gaps 2;

Qy 1 SSSSATTTPETSTSPEKHTTYSTERSEHFKPCRDKDILAYCLNDGCFVIELTGSHKH 60
 Db 256 SSSSSTTTPETSTSPEKHTTYSTERSEHFKPCRDKDILAYCLNDGCFVIBTLGSHK 315

Qy 61 HCRCKEGYQVRCDQFLPKTDSILSDP-NHLGIEFMESBEVYQRQLSISCIIFGIVVG 119
 Db 316 HCRCKEGYQVRCDQFLPKTDSILSDP-NHLGIEFMESBEVYQRQLSISCIIFGIVVG 375

Qy 120 MFCAAFYFSKRNTITANSVSE 141
 Db 376 MFCAAFYFSKKQ -AKQIQE 395

RESULT 7
 US-08-839-437-2
 Sequence 2, Application US/08899437
 Patent No. 612415

GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
 TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related
 TITLE OF INVENTION: Ligands and Uses Therefor
 NUMBER OF SEQUENCES: 23
 CORRESPONDENCE ADDRESS:
 ADDRESS: Genentech, Inc.
 STREET: 1 DNA Way
 CITY: South San Francisco
 STATE: California
 ZIP: 94080

COMPUTER READABLE FORM:
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: WinPatin (Genentech)
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/09/126,121
 FILING DATE: 30-Jul-1998
 CLASSIFICATION:
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: P1084R1D1
 REFERENCE/DOCKET NUMBER: P1084R1D1

TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 INFORMATION FOR SEQ ID NO: 2:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 713 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear

FEATURE: Mouse NRG3 / amino acid seq.
 NAME/KEY: Mouse NRG3 / mNRG3 / amino acid seq.

ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: 36,487
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/08/899,437
 FILING DATE: 24-Jul-1997
 CLASSIFICATION: 435
 COMPUTER: IBM PC Compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: WinPatin (Genentech)
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US-09-126,121-2
 FILING DATE: 30-Jul-1998
 CLASSIFICATION:
 ATTORNEY/AGENT INFORMATION:
 NAME/KEY: Mouse NRG3 (mNRG3) / amino acid seq.
 LOCATION: 1-713
 IDENTIFICATION METHOD:
 OTHER INFORMATION:
 US-08-839-437-2

Query Match Score 80.1%; Pred. No. 4e-66;
 Best Local Similarity 90.7%; Length 713;

Qy 2 SSSSATTTPETSTSPEKHTTYSTERSEHFKPCRDKDILAYCLNDGCFVIELTGSHKH 61
 Db 259 SSSSSTTTPETSTSPEKHTTYSTERSEHFKPCRDKDILAYCLNDGCFVIELTGSHKH 318

Qy 62 CRCKEGYQVRCDQFLPKTDSILSDP-NHLGIEFMESBEVYQRQLSISCIIFGIVVG 120
 Db 319 CRCKEGYQVRCDQFLPKTDSILSDP-NHLGIEFMESBEVYQRQLSISCIIFGIVVG 378

Qy 121 FCAAFFYFSKRNTITANSVSE 140
 Db 379 FCAAFFYFSKKQ -AKQIQE 396

RESULT 8
 US-09-126-121-2
 Sequence 2, Application US/09126121
 Patent No. 6252051

GENERAL INFORMATION:
 APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
 TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related
 TITLE OF INVENTION: Ligands and Uses Therefor
 NUMBER OF SEQUENCES: 23
 CORRESPONDENCE ADDRESS:
 ADDRESS: Genentech, Inc.
 STREET: 1 DNA Way
 CITY: South San Francisco
 STATE: California
 ZIP: 94080

COMPUTER READABLE FORM:
 COMPUTER: 3.5 inch, 1.44 Mb floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: WinPatin (Genentech)
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/09/126,121
 FILING DATE: 30-Jul-1998
 CLASSIFICATION:
 ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: 36,487
 REFERENCE/DOCKET NUMBER: P1084R1D1
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 650/225-2066
 TELEFAX: 650/952-9881
 INFORMATION FOR SEQ ID NO: 2:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 713 amino acids
 TYPE: Amino Acid
 TOPOLOGY: Linear

FEATURE: Mouse NRG3 / amino acid seq.
 NAME/KEY: Mouse NRG3 (mNRG3) / amino acid seq.

ATTORNEY/AGENT INFORMATION:
 NAME: Conley, Deirdre L.
 REGISTRATION NUMBER: P1084R1
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US-09-126-121-2
 FILING DATE: 30-Jul-1998
 CLASSIFICATION:
 ATTORNEY/AGENT INFORMATION:
 NAME/KEY: Mouse NRG3 (mNRG3) / amino acid seq.
 LOCATION: 1-713
 IDENTIFICATION METHOD:
 OTHER INFORMATION:
 US-08-839-437-2

Query Match Score 674.5%; Pred. No. 4e-66;
 Best Local Similarity 90.7%; Length 713;

Qy 2 SSSSATTTPETSTSPEKHTTYSTERSEHFKPCRDKDILAYCLNDGCFVIELTGSHKH 61
 Db 259 SSSSSTTTPETSTSPEKHTTYSTERSEHFKPCRDKDILAYCLNDGCFVIELTGSHKH 318

Qy 62 CRCKEGYQVRCDQFLPKTDSILSDP-NHLGIEFMESBEVYQRQLSISCIIFGIVVG 120
 Db 319 CRCKEGYQVRCDQFLPKTDSILSDP-NHLGIEFMESBEVYQRQLSISCIIFGIVVG 378

Qy 121 FCAAFFYFSKRNTITANSVSE 140

Db 379 PCAAFYFKSKQQ--AKQIQE 396

RESULT 9

US-08-899-437-7
Sequence 7, Application US/08899437

Patent No. 6121415

GENERAL INFORMATION:

APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErBB Receptor-Specific Neuregulin Related
NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:

ADDRESSEE: Genentech, Inc.

STREET: 1 DNA Way

CITY: South San Francisco

STATE: California

COUNTRY: USA

ZIP: 94080

COMPUTER READABLE FORM:

MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: WinPatin (Genentech)

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/126,121

FILING DATE: 30-Jul-1998

CLASSIFICATION:

ATTORNEY/AGENT INFORMATION:

NAME: Conley, Deirdre L.

REGISTRATION NUMBER:

REFERENCE/DOCKET NUMBER: P1084R1D1

TELECOMMUNICATION INFORMATION:

TELEPHONE: 650/225-2066

TELEFAX: 650/952-9881

INFORMATION FOR SEQ ID NO: 7:

SEQUENCE CHARACTERISTICS:

LENGTH: 360 amino acids

TYPE: Amino Acid

TOPOLOGY: Linear

FEATURE:

NAME/KEY: hNRG3 extracellular domain/Amino AcidSeq

LOCATION: 1-360

IDENTIFICATION METHOD:

OTHER INFORMATION:

US-09-126-121-7

RESULT 10

US-08-899-437-3
Sequence 3, Application US/08899437

Patent No. 6121415

GENERAL INFORMATION:

APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErBB Receptor-Specific Neuregulin Related
NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:

ADDRESSEE: Genentech, Inc.

STREET: 1 DNA Way

CITY: South San Francisco

STATE: California

COUNTRY: USA

ZIP: 94080

COMPUTER READABLE FORM:

MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: WinPatin (Genentech)

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/899,437

FILING DATE: 24-Jul-1997

CLASSIFICATION:

ATTORNEY/AGENT INFORMATION:

NAME: Conley, Deirdre L.

REGISTRATION NUMBER:

REFERENCE/DOCKET NUMBER: P1084R1

RESULT 11

US-08-899-437-3
Sequence 11, Application US/08899437

Patent No. 6121415

GENERAL INFORMATION:

APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErBB Receptor-Specific Neuregulin Related
NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:

ADDRESSEE: Genentech, Inc.

STREET: 1 DNA Way

CITY: South San Francisco

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; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/952-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 362 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: mNRG3 extracellular domainAmino acid seq
; LOCATION: 1-362
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; US-08-899-437-3

; Query Match      64.1%; Score 539.5; DB 3; Length 362;
; Best Local Similarity 95.2%; Pred. No. 1-e-51; Mismatches 0; Indels 1;
; Matches 99; Conservative 4; Mismatches 0; Indels 1;

Qy   2 SSSSATTTTPESTSPEKHTITYSTERSEHHKPCRKDKLAYCLNDGECFVYET
Db  259 SSSATTTTPESTSPEKHTITYSTERSEHHKPCRKDKLAYCLNDGECFVYET
Qy   62 CCKEGYQGVRCIDQFLPKTDLSLSDP-NHLGIEFMSEEYQQ 1.04
Db  319 CCKEGYQGVRCIDQFLPKTDLSLSDPFDHLGIEFMESEDVQQ 3.62

; RESULT 12
; US-09-126-121-3
; Sequence 3, Application US/09126121.
; PATENT NO. 6252051
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong
; TITLE OF INVENTION: BrkB Receptor-Specific Neuregulin Related
; TITLE OF INVENTION: Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; COMPUTER TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/126,121
; FILING DATE: 30-Jul-1998
; CLASSIFICATION:
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirae L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1D1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/925-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 362 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: mNRG3 extracellular domainAmino acid seq
; LOCATION: 1-362
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; US-09-126-121-3

; Query Match      64.1%; Score 539.5; DB 3; Length 362;

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Best Local Similarity 95.2%; Pred. No. 1.Se-51; Mismatches 0; Indels 1; Gaps 1;
Matches 99; Conservative 4; Mismatches 0; Indels 1; Gaps 1;

Qy      2 SSSATTTTPETSPKPTTYSTERSHFKPCKDKDYLAYCLNDGECFVIETLTGSHKH 61
        ; Sequence 6, Application US/09553769
        ; Patent No. 654759
        ; GENERAL INFORMATION:
        ; APPLICANT: Yarden, Yosef
        ; TITLE OF INVENTION: NOVEL GROWTH FACTOR WHICH ACTS THROUGH Erbb-4 RECEPTOR TYROSINE K
        ; TITLE OF INVENTION: SEQUENCES ENCODING SAME AND USES THEREOF
        ; CURRENT APPLICATION NUMBER: US/09/553,769
        ; CURRENT FILING DATE: 2000-04-21
        ; NUMBER OF SEQ ID NOS: 18
        ; SOFTWARE: PatentIn version 3.0
        ; SEQ ID NO 6
        ; LENGTH: 48
        ; TYPE: PRT
        ; ORGANISM: Mus musculus
        ; US-09-553-769-6

Db      259 SSSATTTTPETSPKPTTYSTERSHFKPCKDKDYLAYCLNDGECFVIETLTGSHKH 318
        ; Sequence 6, Application US/09553769
        ; Patent No. 654759
        ; GENERAL INFORMATION:
        ; APPLICANT: Harari, Daniel
        ; TITLE OF INVENTION: NOVEL GROWTH FACTOR WHICH ACTS THROUGH Erbb-4 RECEPTOR TYROSINE K
        ; TITLE OF INVENTION: SEQUENCES ENCODING SAME AND USES THEREOF
        ; CURRENT APPLICATION NUMBER: US/09/553,769
        ; CURRENT FILING DATE: 2000-04-21
        ; NUMBER OF SEQ ID NOS: 18
        ; SOFTWARE: PatentIn version 3.0
        ; SEQ ID NO 6
        ; LENGTH: 48
        ; TYPE: PRT
        ; ORGANISM: Mus musculus
        ; US-09-553-769-6

RESULT 13
US-09-553-769-6
Query Match 33.5%; Score 282; DB 4; Length 48;
Best Local Similarity 100.0%; Pred. No. 3.9e-24;
Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Title of Invention: Erbb Receptor-Specific Neuregulin Related Ligands and Uses Therefor
Number of Sequences: 23
Correspondence Address:
Address: Genentech, Inc.
Street: 1 DNA Way
City: South San Francisco
State: California
Country: USA
ZIP: 94080

RESULT 14
US-08-899-437-4
Query Match 33.5%; Score 282; DB 4; Length 48;
Best Local Similarity 100.0%; Pred. No. 0.08899437
Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Title of Invention: Erbb Receptor-Specific Neuregulin Related Ligands and Uses Therefor
Number of Sequences: 23
Correspondence Address:
Address: Genentech, Inc.
Street: 1 DNA Way
City: South San Francisco
State: California
Country: USA
ZIP: 94080
Computer Readable Form:
Medium Type: 3.5 inch, 1.44 Mb floppy disk
Computer: IBM PC compatible
Operating System: PC-DOS/MS-DOS
Software: WinPatin (Genentech)
Current Application Data:
Application Number: US/08/899,437
Filing Date: 24-Jul-1997
Classification: 435
Attorney/Agent Information:
Name: Conley, Deirdre L.
Registration Number: 36,487
Reference/Doctet Number: P1084R1
Telecommunication Information:
Telephone: 650/225-2066
Telefax: 650/952-9881

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INFORMATION FOR SEQ ID NO: 4:

SEQUENCE CHARACTERISTICS:
LENGTH: 47 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear

FEATURE:
NAME/KEY: NRG3 EGF-like domain/amino acid seq.
LOCATION: 1-47
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-08-899-437-4

Query Match 32.9%; Score 277; DB 3; Length 47;
Best Local Similarity 100.0%; Pred. No. 1.3e-23;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 31 HFKPCRDKDIDAYCLNDGECFVIETLGSKHKCRCKEGYQGVRCDFL 77
Db 1 HFKPCRDKDIDAYCLNDGECFVIETLGSKHKCRCKEGYQGVRCDFL 47

RESULT 15

US-08-899-437-8

Sequence 8, Application US/08899437

PATENT NO. 6121415

GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Winpatin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/899, 437
FILING DATE: 24-Jul-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
LENGTH: 47 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear

FEATURE:
NAME/KEY: NRG3 EGF-like domain/amino acid seq.
LOCATION: 1-47
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-08-899-437-8

Query Match 32.9%; Score 277; DB 3; Length 47;
Best Local Similarity 100.0%; Pred. No. 1.3e-23;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 31 HFKPCRDKDIDAYCLNDGECFVIETLGSKHKCRCKEGYQGVRCDFL 77
Db 1 HFKPCRDKDIDAYCLNDGECFVIETLGSKHKCRCKEGYQGVRCDFL 47

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